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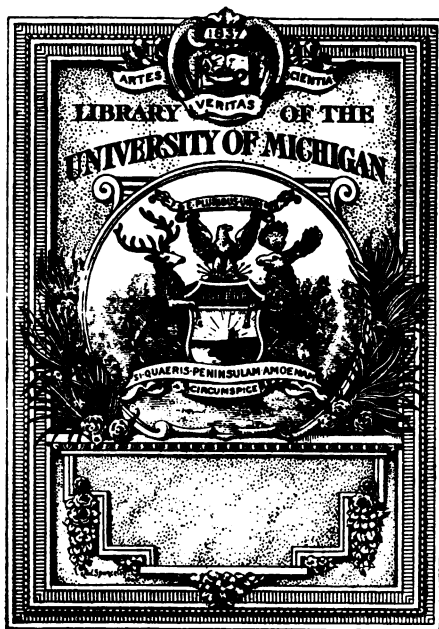
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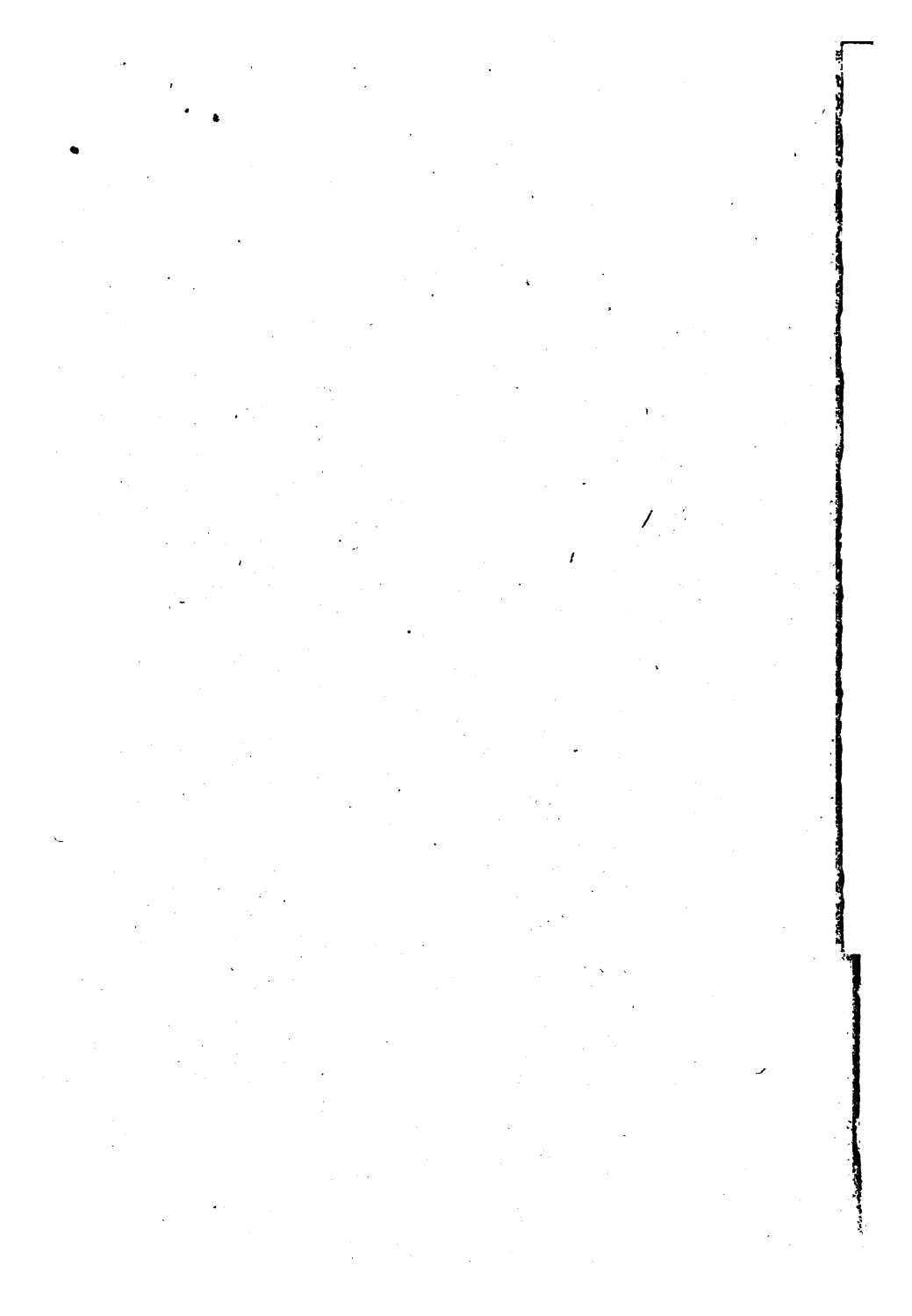


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PRINCIPLES OF INSURANCE



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PRINCIPLES OF INSURANCE

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BY
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INTRODUCTION

It is a remarkable example of man's faith in his fellow man's honesty that it has been possible to sell millions of insurance policies when the purchaser knew so little about the thing which he purchased. As a teacher and salesman of insurance, the writer has often been confronted with the difficulty of presenting the elementary principles of insurance, and this volume is a modest effort to do something to elucidate these principles. The book is primarily intended for the student in the classroom and for the general reader who wishes to know something definite about insurance. It is not intended for the actuary or those practical insurance men who are well informed upon the subject.

The subject of insurance has seemed so difficult of comprehension to the average man that he has usually become discouraged after making a few feeble efforts to understand it, and hence its principles and practices remain, even to most possessors of an insurance policy, a sealed book of knowledge. The difficulties of understanding it are, however, more apparent than real. The insurance agent with whom the public has come most immediately in con-

tact has often not well understood the subject, since he has not felt this necessary, because those to whom he sold insurance knew much less than he did about the subject. Nor has the literature on insurance contributed greatly to its understanding. The actuaries who have written on the subject have usually confined their writings to the purely mathematical aspects of insurance, which presumes for an intelligent understanding a greater knowledge of mathematics than the general reader and student possess.

The literature on insurance, which has appeared since the insurance investigations in the public press and magazines, has often been written by those who knew little of the subject, and, consequently, has contributed quite as much to a misunderstanding as an understanding of insurance. Not until within the last decade has there been any general disposition on the part of the officials of insurance companies to educate the public or even their policy holders on the subject. It was sincerely believed by many of these officials that it was the business of the company to sell insurance and not to expend money on efforts to educate the public. However, a new attitude toward this question has come to prevail in many cases. Legislation of a restrictive character, especially as regards taxation, has been enacted or threatened in so many quarters that many officials have come to believe that the best way to prevent unfair legislation is by educating the public

to a better understanding of the character and purpose of insurance. Such efforts will undoubtedly be cumulative in their good effects, for if successful they will result in more intelligent legislation, both in the present and in the future.

The author does not expect in this small volume to supply all the deficiencies of the literature in the past, but he does not share the opinion, frequently expressed, that insurance is a subject beyond the comprehension of the individual of average intelligence, and this volume represents a modest but sincere attempt to aid the student, within and without the classroom, in the understanding of a subject which now means much and promises even much more for the happiness and prosperity of the people.

No claim is made for originality as to the facts stated in these pages, since most of these have been long known to those informed upon insurance. It is not expected that the reader will always agree with the author in his discussion of mooted questions, nor is such agreement essential. It is ventured, however, that the author may claim some originality as to the method of treating the subject. So far as the literature in English is concerned, there is not to be found a single volume which attempts the exposition of insurance in a manner suited to the use of a classroom. Practically all the literature is confined to special aspects of the subject. If an explanation be demanded then for errors in treat-

ment, the author may suggest that he has had no precedents to follow. It has been constantly held in mind that the book was intended for those who knew practically nothing about insurance, and it may appear to the reader who is informed upon this subject that there are needless repetitions. This is not, it is believed, to be the case, for one of the greatest difficulties in describing insurance is the great number of technical terms which it is necessary to use and which have new significance when connected with other new terms. For example, the reserve has a certain significance when one seeks to compare companies, an additional meaning when premiums are discussed, and still something more when investments are considered.

An effort has been made to select such readings on each topic as would be most helpful, although in many cases such references will doubtless be disappointing to the reader. Much of the best literature is either in pamphlet form or in the insurance journals. An exception is to be made in the case of insurance statistics. Such annuals as the *Insurance Year Book* of the Spectator Company leaves little to be desired in the way of statistical literature. An exception is also to be made in the case of the German and French literature, much of which is of a very high character and in general much more extensive than the literature in English. Few references to this literature have been made; first,

because most of it is not accessible to the reader of this book, and second, because this is an elementary discussion of the principles and practices of insurance.

It is not expected that this volume will serve the complete needs of a course in insurance. The instructor will necessarily supplement the text by lectures to explain in greater detail the topics discussed, and especially by collecting such illustrative material as policy forms, annual statements of the companies, state reports, and rate books. All this and other material can easily be secured, and it affords an excellent basis for some valuable instruction.

The author has not attempted to write a comprehensive book on insurance, if the word "comprehensive" is taken to include a minute discussion of the many points in the practice of insurance organizations. The effort has been to give a concise discussion of the leading principles and practices underlying life insurance and the closely related personal health and accident insurance, together with a discussion of the plans of insurance for the wage-earning classes. The instructor will therefore find many occasions to enlarge upon the subject matter of the book.

A second volume, discussing Property Insurance and the "Miscellaneous Lines," is planned along the same general plan of this book, but owing to the present discussion of rates and schedule rating and

the experiments being made in state rating, the publication is postponed. Several of the miscellaneous lines are also passing through such a rapidly developing stage that much of what would now be written would soon be incorrect.

Grateful acknowledgment is made to S. E. Stilwell, Ph.D., F.A.S., Actuary of the Ohio Insurance Department, for many valuable suggestions as to statements of facts and methods of treatment, and especially for aid in writing the parts of the book which pertain to the actuarial aspects of the subject. He has read and criticised the entire manuscript, but the author alone is responsible for any errors of fact, treatment, or omissions.

W. F. GEPHART.

OHIO STATE UNIVERSITY,
COLUMBUS, OHIO, March 15, 1911.

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PRINCIPLES OF INSURANCE



CHAPTER I

LIFE INSURANCE AND ITS HISTORICAL DEVELOPMENT

INSURANCE is an agreement to pay a certain sum of money to compensate for the loss resulting from some contingent event, in consideration of an immediate cash payment or a series of payments. The loss insured against may happen soon, may be long deferred, or may never happen. **Insurance Defined.**

Life insurance is effected by a contract between two parties, the insurer and the insured, in which a determined sum is agreed to be paid to a third party, the beneficiary, upon the happening of death, on condition that the second party, the insured, pays certain sums to the first party, the insurer. It is an agreement to pay a certain sum in the future by the insurer in consideration of the payment or payments of a certain other sum by the insured. It is a form of social coöperation and had its real origin in the wants of the

family. It is a method of distributing the effects of losses. It is a mutual agreement among many to assume the burdens suddenly falling upon a few. It is also a method of capitalizing future time and energy against premature death. It is therefore based on the fact that a single life has either potential or actual value.

From this description of insurance it is evident that there could be no considerable development of insurance until society had progressed to the stage in which (a) the family was definitely established with social obligation and rights, and (b) the individual as an individual was valued as a member of society. Until the definite sex relations of the monogamous family were established, there could be fixed no definite obligations upon the different members of the family organization. However, in the monogamous family organization women and children assumed a position at once more definite and important than in the previous family organization. Affection and a sense of responsibility both operated to place definitely upon the husband the duty of caring for his wife and children. To a less degree only did he feel the obligation of caring for his parents and those of his wife. Thus the possible widow and orphan and infirm parent became a source of solicitude for the husband, who was urged by the definite family bond to make provision from his labor for their care and maintenance.

Origin of
Life Insurance.

In the second place, society had to develop to the point of valuing a life as an individual life before insurance could arise. In the earlier history of civilization it was only the exceptional individual, the king, the warrior, or the priest, whose life had any considerable value. Division of labor had not proceeded far and the work of the masses was so simple, that the loss of any one person was not greatly missed, since almost any other person could do his simple task. With the progress of society and the corresponding minute divisions of labor, the life of each came to have a definite value to the other members of the group, so that it has come to be of great importance to society that each perform his allotted task and make provision for meeting his obligations.

Each individual comes into the world in possession of that rich heritage from the past which makes most members of society debtors throughout life. If in addition a man does his share in perpetuating the race by assuming the family relation, society has a right to expect that he will make proper provision to prepare his children to become efficient members of society by providing a fund out of his surplus earnings to equip them properly for life and for the maintenance of his widow in the event of his premature death. Otherwise his family may become a charge upon society. They are a form of debts which must be paid, and it is a kind of dishonesty when no provision for their care is made, no less culpable than

that in which a man refuses to pay his monetary debts. Life insurance thus not only provides for dependents, but it also prevents an increase of the dependent class. The normal development of the family of the deceased husband is permitted, since provision has been made for the education of the children, and the maintenance of the wife, which provision the husband would have made, had he lived. Thus since society is an organism made up of individual units and is benefited by whatever benefits the units, life insurance promotes the well-being of society by properly caring for the social unit, the family.

In addition to these purely material values which life insurance secures for the family, it undoubtedly **Benefits of Insurance.** does much to promote the best family life by strengthening mutual affection, by recognizing and meeting family obligations. It doubtless also adds to the efficiency of the family because it relieves the members of it from an anxiety about the future. Life insurance, then, promotes a sense of responsibility, it strengthens family ties, it creates unselfishness and thus produces a high type of a social individual by inculcating the idea of sharing burdens and of practising widespread collective coöperation. The direct economic values of insurance are no less evident. We have seen that it makes possible the proper training of the children of the insured by providing a fund for their educa-

tion, thus relieving society both of the burden of support and that of training. It also relieves the insured from anxiety about the future and contributes powerfully to his efficiency in his daily work.

Life insurance enforces thrift, for the ordinary contract calls for the payment on the part of the insured of definite sums at stated intervals. Through lack of foresight or will ^{Insurance and Thrift,} power few men will save unless under pressure. There is a constant temptation to overvalue the present as compared to the future, not because the latter is uncertain in the minds of most men in their productive years, but because of the intense pleasure of present consumption and lack of imagination in visualizing the pleasures of future consumption. Even a large number of those who voluntarily save do so only intermittently. The savings bank depositor is constantly tempted both to make his deposit less than he is able to make it and to spend it for conveniences or luxuries. But the possessor of a life insurance policy comes to look upon his premium in much the same light as the giver of a note or mortgage looks upon the interest. It must be paid. Out of the surplus earnings of his productive years, a sum is annually set aside for obligations either already created by his family connections or for his own maintenance after his productive years have passed. If it is a form of a policy which matures in the latter part of a man's normal lifetime, it

may often be invested more wisely as well as more profitably because it is a considerable sum and the individual has had years of experience in business. Meanwhile, during the interval the small yearly contributions of each policyholder are combined with those of millions of others and constitute an enormous fund of accumulated capital with which to conduct, when it is loaned, the large-scale industrial enterprises of modern times. While the rate of interest secured to the individual policyholder on his annual premium may not be large in the abstract, yet through a long series of years it nets him in many cases a greater sum than he would be able to secure, if he were compelled to attempt to keep his small payment continuously invested without loss. Desirable and safe investments are found for these collected funds, which could not be secured by the individual contributors to the fund. Then, too, the final payment to the beneficiary of the sum secured by his small annual payments is certain, even though the assured pays only one year's premium. This may seem inequitable to those who pay into the fund for many years, but we shall see later that the computations are so made that the average result is fair to all.

The life insurance company by its small collections from many sources brings together large borrowers and many small lenders. Life insurance indirectly creates wealth by enforcing thrift and

saving and by inculcating habits of regularity in living. It directly affects the distribution of wealth in that it is a fund collected from the contributions of many and distributed without any necessary relation between the amount paid in and the amount paid out, so far as any one individual is concerned. That is to say, the principal sum may be paid after only one year's premium has been paid, the members of the insured group having by the very fact of their becoming members of the society mutually agreed to bear each other's burdens. We cannot understand insurance unless we thoroughly understand this principle, viz. that insurance is based on the idea of mutuality.

Insurance
and Eco-
nomics.

The conditions precedent for insurance are:

- (a) There must be a risk of a real loss which neither the insured nor the insurer can prevent or hasten;
- (b) a large number of persons must be liable to the risk;
- (c) the casualty contemplated must be likely to fall upon a comparatively small number during any short interval;
- (d) the probability of its occurrence must be capable of being calculated before its occurrence with some approximation of certainty;
- (e) the loss, when it does occur, must be considerable enough to be worth providing against;
- (f) the cost of the provision must not be prohibitive to large numbers of persons.

Conditions
precedent
for Insur-
ance.

It has been stated that life insurance had its origin in the needs of the family and was prompted by the affectionate solicitude of the head of the family for it. It must not be concluded, however, that affection has been the only motive present in the historical development of insurance. The gambling or wager aspect has at times played a part. Purely commercial considerations have also been of some importance. It is manifestly impossible to fix any particular date for its origin, since like any other complex social institution it has had many different phases in its development. We may, however, divide its development into two periods: (a) that of experimentation, and (b) that of scientific exactness. The most important antecedents of present insurance which were characteristic of the experimental stage were as follows: (a) agreements with money lenders to provide money for purposes of ransom in case of capture where an individual went on commercial ventures to foreign lands or religious wars or pilgrimages, or an agreement whereby the money lender paid double or treble a certain sum if the voyager returned, or paid certain sums to his family in case he did not return; (b) the establishment of purely mutual societies, sometimes called fraternities, sometimes guilds, in which each member contributed an equal sum for the payment of fines and forfeitures inflicted on members of the guild who had committed crimes or

who were compelled to pay damages to others for the loss of life or property. When payments on account of death had to be paid, these payments were usually made to the family of the deceased member of the fraternity. This was a form of social insurance which has somewhat of a counterpart in the more scientifically conducted fraternal insurance of the present; (c) the purchase of annuities, that is, the payment of certain sums of money to an individual at stated intervals as long as he lived. To do this it was necessary to have mortality records, and we find that the Roman jurist Ulpian compiled in A.D. 364 a mortality table for estimating the value of life annuities. This table, considering the imperfect records, was remarkably accurate. It was not an uncommon practice among the Romans to bequeath to faithful retainers an annuity. Annuities were also oftentimes given to members of the family, other than the eldest son.

By the sixteenth century the purchase of annuities had become common in the commercial cities of Europe, although they were not based on very scientific plans, especially after the fall of Rome, when the data and tables collected by the Romans were lost. It was also a practice in this early period to insure the lives of individuals who held life interests in estates. Any one entitled to receive during his life a rent or a pension could sell insurance on his life for the provision of his family. All these precursors

of insurance were unscientific for the reason that scientific insurance must be based on accurate statistics of lives, especially death rates for all ages, in order to know when payments must be made and in what amounts they will be demanded. The state of society precluded such an institution as modern insurance. Life was too uncertain. War was a game at which kings played. Princes of smaller territories often waged war against their neighbors. Quarrels with fatal results were common. Violence was the rule of the time and single lives had little value. Plagues, pestilence, and famine were dangers ever present in almost every region. Unsanitary conditions of living were a characteristic of even the most civilized people if measured by present-day standards. Medical science was in its infancy. The duration of life was a lottery, subject to so many accidents that the probability of its duration could be measured in no way. It is, therefore, evident that life insurance, except as a wager or hazard, could not exist.

One of the first efforts to collect vital statistics was made in 1592, when the first London Bills of Mortality were published. Since 1603

**Early Data
for Scientific
Insurance.** their publication has been continuous.

The original purpose of their publication was to allay the fears of the people of London who had been periodically subject to the plague. Deaths were reported to the parish clerk, who compiled and

published the number of deaths and their causes. The attention of scholars was later directed to this data, and deductions as to death rates were made.

In 1664 John Graunt published a work in which he attempted to place a value on the duration of life, as shown by these Bills of Mortality. However, his data were far from complete for the purpose of insurance, since they often did not give the ages at which the individuals died, nor was there any information in regard to births. It was not until Dr. Halley, the Astronomer Royal, published in 1693 a mortality table based on the vital statistics kept by the town, Breslau, together with mathematical formulas for calculating annuities, that the real basis of insurance was established.

In 1742 Simpson, a mathematician, extended the work by making a practical application of the theory of probability to the valuation of life annuities. These last enumerated facts made possible a transference of life insurance from an experiment to a science, although experimental insurance and gambling under the guise of insurance have not yet disappeared.

In 1698 a public office for life insurance was opened in London under the name of the Mercers Company, and in 1699 the Society for the Assurance of Widows and Orphans was established on the plan that each one of the 2000 members should pay an equal sum

**The Origin
of Modern
Insurance.**

and each family should receive an equal sum upon the death of the insured member.

The Amicable Society, of London, the first purely mutual company, was founded in 1706. Several other companies were formed during this period, but most of them failed to use whatever little accurate scientific knowledge there was on the subject. All of them charged the same premium rate regardless of age. Most of them were stock or proprietary companies, all of which had failed or failed at the culmination of the period of speculation, the bursting of the South Sea Bubble in 1720. The Amicable Society alone survived in 1720, but in 1721 the Royal Exchange and the London Assurance Companies were formed, both of which are yet in existence. It was not, however, until the organization of the Equitable Society of London in 1762 that life insurance was successfully placed on a scientific basis. The company employed the mathematician, Dr. Richard Price, who would now be called an actuary, to determine the premiums which they should charge. He drew up the Northampton Table of Mortality and from this event insurance as a science may be said to date.

In America the history of the development of insurance has necessarily been different. **Historical Development of Insurance in America.** Many of the settlers were doubtless familiar with the history and operation of the English and continental companies. It was not,

however, until 150 years after the first settlement of the country that a life insurance company was organized. Population was very sparse, accidents and dangers of death were numerous, mutual helpfulness generally prevalent, few were even well-to-do, and data as to birth and death rates were very incomplete. In 1759 there was organized what is now called the Presbyterian Ministers' Fund, under the title of "A Corporation for the Relief of Poor and Distressed Presbyterian Ministers and of the Poor and Distressed Widows and Children of Presbyterian Ministers." This society gradually developed into a modern insurance company and still exists as an excellent insurance organization. It accepts as risks only ministers. The ministers of the Episcopal Church organized a similar society in 1769.

The Insurance Company of North America, of Philadelphia, was organized in 1794 and although other companies were organized from time to time, life insurance as such did not develop much until after 1835. In that year the New England Mutual Life Insurance Company was chartered by Massachusetts. This company was established on the plan of the old Equitable of London, which, during the preceding twenty-five years, had been very successful. The Equitable of London was a purely mutual company, but the legislature of Massachusetts required the incorporators of the New England Mutual to

guarantee a capital of \$100,000. Owing to the difficulty of persuading capitalists to supply the money, the company was not able to begin writing policies until 1843. In the meantime a stock company, the General Life and Trust Company of Philadelphia, chartered in 1836, had been doing considerable business. It had provided for a division of profits with its policyholders, thus furnishing an example of what is called a mixed plan, that is, a stock company sharing profits with policyholders. Some of such companies permit a partial management of the company by the policyholders. Owing, however, to the great New York Fire in 1835, which caused a failure of many of the stock fire insurance companies and the subsequent organization of mutual fire insurance companies which seemed to be successful; and owing further to the success of the mutual marine and mutual life companies in England, the mutual plan as applied to life insurance came into great favor in the United States. The Mutual Life of New York was organized in 1842, the New England Mutual of Massachusetts began writing business in 1843, the Mutual Benefit of New Jersey was organized in 1845, and the New York Life in the same year. From 1843 to 1859 fifteen other companies were organized, and the aggregate amount of insurance in force at the latter date was \$150,000,000, an amount less than any one of several companies is now able to write in a single year.

The period from 1860 to 1870 was a golden age in the life insurance business. Notwithstanding the opening of the Civil War and the fear of insurance officials that the insurance business would decrease, it showed a remarkable increase. During the decade seventy-seven new companies were chartered, making a total in 1869 of one hundred and ten companies with almost a billion and a half of dollars of insurance on their books. This period of expansion was followed by one of depression, extending from 1870 to 1880. The causes of the remarkable growth of insurance during the preceding period and the consequent period of depression may be grouped under the following heads: —

The Period
from 1860 to
1880.

First. Insurance was a new idea, which in its application promised to satisfy the very strong characteristic of the Anglo-Saxon to make provision for his family.

Second. Actuarial science had not developed to any great extent in America. These numerous companies, most of which had been organized on the mutual plan, were patterned after the old Equitable of London, which now had a successful history of over a century. However, they did not follow very closely the plan of the Equitable. Interest rates were much higher in America and this led practically all of them to charge a premium only from 30 to 60 per cent as large as the Equitable charged for

the same policy. In the early history of the companies, when the death rate was low, even the collections of these lower premiums were more than sufficient to meet the claims against the companies. The companies found themselves with much unused money on hand. This led most of them to promise and many of them to pay enormous dividends. Later, when some of the companies perceived these mistakes, the competition with other ignorantly or dishonestly managed companies led them to continue the policy by issuing scrip certificates for these larger dividends. These were redeemable at a future time, frequently at death. When the death rates increased, as the company became older, these promises of large dividends could not be kept, and many policyholders were disappointed.

Third. Many of the mutual companies in their desire to make the buying of insurance easy and because they had more than sufficient funds to meet the few early death claims accepted notes for the premiums due. The policyholder was led to believe that his dividend accumulations would amount to as high as 50 per cent of the premiums due, but future events so sadly disproved this, that many were unable to make payments due for unpaid premiums and were forced to give up their insurance. The people who knew little about the principles upon which scientific insurance should be conducted came to believe that insurance was a "swindle" and refused to purchase it.

Fourth. The seeming prosperity of insurance companies caused many companies to be organized for the purpose of a speculation or for pure swindle.

For these reasons the failure of companies became numerous after 1870, and the panic of 1873 greatly accelerated the movement, so that by 1880 the amount of insurance in force, as compared with 1870, had decreased almost 50 per cent.

The period from 1880 to 1905 may be considered as the one in which the companies were placed on a thoroughly scientific basis. It is further characterized by a systematic business organization of the companies, a liberalization of the contracts, and a very great increase in the expense of securing business, due in part to the great rivalry of companies, in part to the general adoption of the deferred dividend system and in part to the invasion by some companies of foreign countries to secure business. The amount of insurance in force during the period increased 500 per cent, reaching in 1905 twelve billions of dollars. This refers, of course, as does all our preceding statements, to level premium or ordinary life insurance. The development of other kinds of insurance is described later.

The year 1905 is chosen as the close of a period because that year marks the beginning of change in the relation of the state to the conduct of the insurance business. Previous to this date the states had

laid down in general laws the terms upon which companies could be organized; many of them had well-organized insurance departments, but

The Period from 1905 to 1911. the character of the relation of the state to the business preceding 1905 may be

described as that of a general supervising nature. In the preceding period of fierce competition and loose supervision many well-defined evils arose. In a contest between two parties for control of the management of a prominent New York company facts were disclosed which led to an investigation by the state of New York and subsequently by other states of the management of several insurance companies. The result in the end was the subjecting of the business of insurance to much more detailed regulation than in any other period in the past, either in the United States or in foreign countries.

Laws were passed regulating the amount of commission to be paid to agents, the total amount to be spent in securing new business, the surplus, the plans of apportioning dividends; the amount of new business to be written, the requirement of certain provisions in all policies, the prohibition of certain provisions in all policies, and particularly greater publicity. As a result the insurance business is at present more minutely regulated in the United States than in any other country and in fact little further is left to be regulated. There is already some evidence of a reaction along certain lines against such strict regula-

tion, for it is becoming apparent that some of the regulation was unnecessarily burdensome to the companies and subserves no real interest of the policyholder. However, some unwise legislation was to be expected after the disclosure of the evils of the period of lax regulation. Then, too, such gross misrepresentations were made at the time of the investigation as to exaggerate the evils and bias the minds of the legislators who in general knew little about the business. Great injury has often been done to the insurance business through a failure on the part of the legislator to understand the character of insurance. It is a business of such complexity and the ignorance of the general public regarding it is so great, that sometimes their representatives in the legislatures are used by men acting from personal motives of opposition to the business or seeking popular favor by the common practice so prevalent in these later times of attacking anything that is big. Probably most of the injury has resulted, however, not from evil intent, but from a lack of understanding, and it is encouraging to note that more and more the legislatures are depending upon their insurance departments to recommend the passage or defeat of measures which affect insurance.

Although there is yet considerable opportunity for making the state departments of insurance more efficient, the improvement in department work during the last six years has been very marked. It must be

admitted, however, that preceding the legislative uprisings following the disclosures of 1905, the companies themselves had done little to inform either policyholders or the public as to the character of the business, and hence were not in position to expect many sympathizers or supporters. Happily, efforts since then have been made which, if continued, will do much to make impossible both the existence of many of the internal evils complained of in the past as well as the enactment of unwise laws designed to regulate, but which in their operation restrict the business. The campaign of educating the people to understand the principles of insurance and to appreciate its benefits must be vigorously conducted and long continued. There is scarcely another business about which the average man is so ignorant and moreover the nature of the business is such that it continually tempts the legislator to use the insurance funds as a source of revenue, for he is seeking the easiest sources of additional revenue for the increasing state expenditures. It has large funds, accumulated from many different sources, and the apparently small tax rate which is usually levied on the gross premiums yields a large revenue. Being an indirect tax widely distributed as to payment, the real burden is not easily perceived.

What has been previously stated in reference to the historical development of insurance refers in the main to legal reserve insurance. It is often called old line or level premium or scientific insurance. Old

line, legal reserve insurance is insurance sold by a company for a premium or premiums fixed in amount during the length of the policy, or for a limited period, the premiums being such amounts as will accumulate a sinking fund or reserve which together with future premiums will meet all obligations of the company. We have now to describe the development of two other kinds of life insurance, viz. assessment, and industrial.

The general plan of assessment insurance is to collect sums from each of the members of the society as the claims fall due, but there have been many modifications of this plan. In some cases the same amount was collected from each member, regardless of the age at entry or attained age. In other cases there has been an attempt to adjust the amount collected to the age, but in practically all cases the amount collected was arbitrarily decided without much reference to scientific plans. Frequently the plan called for the payment of the same amount to each beneficiary upon the death of the insured, although this amount might differ from time to time.

In Europe the assessment plan preceded the level premium plan, naturally enough, for it seemed to supply cheap protection upon an equal basis. In the United States, however, the assessment plan did not develop until after the level premium plan was well established. The early settlers brought with them

the prevailing ideas of insurance in England and this was the level premium plan.

Two kinds of assessment companies must be distinguished : (a) the business assessment companies, and (b) the fraternal assessment organizations. In 1867 the first important business assessment company was organized in the United States and in 1868 appeared the first important fraternal assessment company, the Ancient Order of United Workmen. This association is yet in existence.

It may be difficult to explain completely the causes for the rise of assessment insurance in the United States, but the following reasons go far in the explanation : (a) The disappointing practice of the early level premium companies in accepting notes of the policyholders for the premium upon the supposition that the large anticipated dividends would equal the face of the notes. These notes were charges against the policy and bore interest. The large dividends promised were not earned and the policyholder was in the position of having less insurance and an increasing amount to pay as interest. Now the policy in the earlier years of insurance in the United States was a whole life policy contract with level premiums payable as long as the insured lived. None of the present-day benefits, such as a cash surrender value in case of failure to pay the premiums, a loan, or paid-up insurance, were provided in the contract. If the policyholder ceased to pay his premiums,

he had no insurance and previous payments were the property of the company. Many policyholders were unable to keep up the payments when the large dividends did not accrue and when their interest debts increased. Many were forced to give up their insurance, and since the policy did not provide for any cash surrender value, many felt that they had been robbed. The managers of the companies, most of which were on the mutual plan had not understood insurance and were deceived by the low death rate in the earlier years. They were led to promise these large dividends which the inevitably higher death rate of the later years made impossible.

(b) In the second place the policyholder perceived that the companies had accumulated, particularly in the earlier years, sums far in excess of the demands made by death claims, and they could not understand the necessity of this reserve fund. They were paying more than was necessary and getting nothing when they ceased to be a member of the company, so they reasoned. This violated all their ideas of mutuality, the plan of all for each and each for all. It was not unnatural, then, that the assessment plan became very popular, and when the hard times of the seventies came, this accelerated the movement towards assessment insurance. Hundreds of business assessment companies were formed in the seventies and eighties, but to-day these have largely passed out of existence, and those in existence are conducted on

somewhat different plans from those of the early societies. The first societies started on the plan of collecting the same amount from each member regardless of age. Soon, however, this unfair plan was changed for the one in which a member was charged a sum at entry on the basis of his age. If the death rate at 25 is 7 per 1000 and at 50 it is 10 per 1000, then they erroneously reasoned the monthly payment of a man at the former age should be one twelfth of \$7 and at the latter age one twelfth of \$10. This made the mistake of not taking into consideration the increasing age of the members in the later history of the company. This mistake was sometimes recognized later, and an effort was made by some of the companies to correct it by accumulating a fund by an addition to the ordinary assessment. This in practically all cases proved an entirely inadequate fund to meet their obligations.

The assessment idea, as applied to fraternal societies, has had quite a different history. It must be stated, however, that all fraternal insurance of **Fraternal Insurance.** the present is not on the assessment plan. Some of it is on the level premium plan which has already been described as that of the old line companies, and what we now have to state refers to fraternal insurance on the assessment plan. It has been stated that the first fraternal order was that of the Ancient Order of United Workmen, founded at Meadville, Pennsylvania, in 1868. Two stages in the

development of fraternal societies may be noted. The first stage in which they were conducted on the unscientific plan of the earlier assessment orders, and the second stage of transfer to the scientific plan of reserve insurance, based on the mortality experience of fraternal societies. It is not intended that the reader shall infer that all fraternal societies have passed through this period of transformation and are now on a scientific basis, for many of them are struggling to solve this difficult problem, and doubtless many will not be able to solve it. No further description is necessary of the first stage, since what has been said of business assessment societies equally applies to fraternal assessment societies on this plan.

The most important fact in connection with the fraternal societies, and the one which differentiates them from the business assessment companies, is the fraternal idea which characterizes the former. It was this alone which made possible a transfer to a scientific basis. This idea of brotherhood, a willingness to share each other's burdens, that all might have protection, induced the members in some cases to pay the necessary higher premiums called for when the society undertook to correct the errors of the old plan by accumulating a reserve. Rates were adjusted in some fraternal societies and are being adjusted in some others by this appeal to the fraternal instinct. Members have continued in the societies long after they would have withdrawn from

the business assessment societies. Then, too, the state has interfered very little with the conduct of fraternal insurance. The societies have been left largely free to organize and conduct their business as they pleased. Whether this has been an ultimate advantage may be questioned, but in any event it has left them free to adopt their own plans of transfer to scientific insurance, and the members have felt that whatever they have done has been done of their own volition and for their own good. These societies in time came to use a mortality table based upon their own experience. This table has a lower death rate than the table used by the legal reserve companies; and this, coupled with the fact that the expense of securing members and conducting the insurance business in connection with their other fraternal activities is lower than in the legal reserve companies, makes the transfer easier.

Fraternal insurance needs no defense for its existence. Mistakes have been made in the past, and errors, as in all institutions, are yet present. The pure assessment plan has been the source of disappointment to thousands. Many have made years of sacrifice from which their dependants have received no benefit. Doubtless some have been induced to take out regular insurance after having held a policy in assessment societies, but the unfortunate experience of many persons in assessment societies has caused many others to refuse to buy any kind of insurance.

Nor is it a complete justification for the existence of the pure assessment plan to maintain that at least some of the intended beneficiaries have benefited from these small inadequate collections. Some do benefit, but many others lose so that paradoxically as it may seem the most successful assessment society is, from one point of view, the least successful. It is a small temporary benefit in exchange for a large future injustice. The present movement by insurance commissioners and state legislators to compel fraternal societies now on the assessment plan to operate upon a plan such as will insure the meeting of all future demands by the accumulation of an adequate reserve may well be encouraged and will certainly come to pass in time.

Industrial insurance is that form of ordinary level premium insurance in which the premiums are paid weekly to the agent of the company and **Industrial Insurance.** in which the amount of the insurance is adjusted to the premium. The premium is 5 cents weekly or the multiples of 5 cents. This form of insurance originated in England in 1849 by the formation of the Industrial and General Insurance Company. The business of this company was assumed by the Prudential Insurance Company of the same country in 1854 when Industrial Insurance as now known was begun. The business has attained enormous proportions in the United States, although over 90 per cent of the business is done by three companies,

— the Prudential of New Jersey, organized in 1875 ; the Metropolitan of New York, organized in 1875; and the John Hancock of Massachusetts, which began writing this kind of business in 1879.

The two other important companies are the Life Insurance Company of Virginia, organized at Richmond, Virginia, in 1887, and operating chiefly in the south ; and the Western and Southern, organized at Cincinnati in 1888, and operating chiefly in the middle west. The chief purpose of industrial insurance is to provide burial funds for members of the family. Every member can be insured. As its name implies, it is insurance for the industrial classes, the wage earner, who either cannot from his small net wage save enough to carry ordinary insurance or who will not, from lack of foresight and thrift, save enough when his wage would make this possible. This statement suggests one of the chief values of this form of insurance, viz. that it is a powerful factor in inculcating habits of thrift, saving, and industry. Large numbers of those who first carry industrial insurance may later carry regular insurance. Not only does it enable the family to enjoy a higher standard of family life and meet the unexpected obligations incurred as a result of sickness and death, but it also has a direct value to society in that it relieves it of the expense of meeting these obligations. It indirectly benefits society by benefiting the units of which it is composed — the family.

Industrial insurance may be compared in one sense with ordinary insurance by describing the former as insurance at retail and the latter as insurance at wholesale. The price of goods and services on the retail plan is higher than on the wholesale plan and just so is the price of industrial insurance higher than ordinary insurance. The expense of collecting weekly from door to door these small sums from so many different people is enormous, which added to the increased office and accounting work explains in great part its higher price. The premiums are based on the same principles as are those of ordinary insurance and the insurance is as scientific as the latter. The average weekly premium paid in this country is about 10 cents. The greatest problem in industrial insurance is to reduce the expense of its transaction so that the numerous classes which it serves may secure the benefits of insurance without incurring the risk of undermining habits of industry and thrift by any public form of charitable relief. The fuller discussion of workingman's insurance is deferred to a later chapter.

The following table, exhibiting the insurance carried on by the old line regular life insurance companies and by the assessment life associations and fraternal orders, shows that assessment insurance is still an important factor in competition for life insurance.

LIFE INSURANCE AGGREGATES

	WRITTEN IN 1909.	IN FORCE DEC. 31, 1909.
Old line (ordinary)	\$ 1,332,873,539	\$ 11,022,121,732
Old line (industrial)	1,116,242,136	4,458,599,479
Total old line	\$ 2,449,115,675	\$ 15,480,721,211
Stipulated premium	\$ 14,344,223	\$ 31,637,656
Assessment life	210,367,123	742,722,444
Fraternal	1,203,403,691	8,920,716,227
Total assessment and fraternal	\$ 1,428,115,037	\$ 9,695,076,327
Aggregate	\$ 3,877,230,712	\$ 25,175,797,538
Ratio of old line insurance to aggregate	63.2	61.5
Ratio of assessment and fraternal to aggregate	36.8	38.5

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CHAPTER II

THE THEORY OF LIFE INSURANCE

WE have now to consider the theory upon which life insurance is based, and in its most important aspects it may be treated under the two heads: (a) Rate of mortality, and (b) Rate of interest. Insurance is the assumption of risk by a group in order that the individual may be protected. The theory of risk, as applied to insurance, needs to be explained; and to do this the doctrine of chance and the law of probability must be introduced.

As we observe phenomena we are continually making generalizations from the data collected by the examination of single cases. We speak of a chance happening, meaning by this The Theory of Probabilities. that a certain result has been brought about from unknown, or unknowable causes. However, most of the results or phenomena which we ascribe to chance pure and simple become knowable and understandable after observation is made over longer periods and of a greater number of events. Order comes out of chaos. We come to perceive aggregate regularity amidst individual irregularity. For example, it is a fact that the age at which any

one of a group of 1000 children will die is unknown, but continued observation of the life history of such groups of children will disclose a regularity of deaths at succeeding ages. Or, again, if a perfectly constructed coin is spun in the air, it may fall heads or tails, the chance of a head or tail appearing being one half. However, if it is spun a great number of times, the number of times that heads and tails will come up will approach equality. That is to say, order begins to appear as we increase the range of our observation. It is not true that this irregularity as to individual instances is complete, for in every case it has definite limits. For example, it is absurd to conclude that the average length of life is uncertain, because we cannot foretell when an individual child of the 1000 will die. It certainly will be considerably under 125 years, just as the coin will certainly come up either head or tail.

Bernoulli has summed up the above facts in the two propositions: (a) that the probability of events happening in numbers proportionate to their respective chances in a single trial is greater, the greater the number of trials or observations; (b) that the number of observations or experiments may be so determined that the deviation from this stated ratio approaches certainty as closely as is wished, or concisely: "In the long run events will tend to occur with a relative frequency proportional to their objective probabilities." The toss-

**Bernoulli's
Statement.**

ing of the coin and the tendency to secure an equal number of heads and tails as the number of tosses is increased illustrate the first theorem; or, again, if the births of 10,000 children are known and 1000 die the first year, the chances of any one infant living during the first year is $\frac{9}{10}$. As the number of children under observation increases, the actual results, that is, the deaths, will closer and closer approximate the calculated ratio of deaths. That is to say, order gradually emerges out of disorder and a definite and recognizable uniformity is disclosed. This uniformity, however, has certain conditions, without which it will not apply. There must be a sufficient number of incidents to disclose it, and the observations must be confined within definite periods.

That is to say, in the practical application of the principle to life insurance, a large number of lives must be observed within definite periods. Owing to advances in civilization, to improvements in living conditions, to changes in ideas of life and the employments of man, the average duration of life changes. It is certainly now longer than it was 100 years ago and doubtless its duration will be different 100 years from now. It may be longer or shorter either from necessity or choice. All that is necessary for successful scientific insurance is that the uniformity through any period be known, even though the uni-

Application
of this The-
ory to Life
Insurance

formity be subject to secular changes. We therefore assume in life insurance that the conditions determining the length of life are fixed, and that we have a fixed limit — the average duration of life — within which or towards which the individual length of life is tending. It is true, indeed, that just as there are “runs of luck,” as when in tossing a coin, heads may come up continuously for several times in succession, so, too, in life insurance there may be an unusual number of deaths within a short period, or the number of deaths may be far below what is normally expected and calculated. But these abnormal experiences will so counteract each other in the long run that the total result will be in harmony with the uniformity previously observed.

The practical effect of this in life insurance is that those who live longest pay into the general fund a more than proportionate share in order to balance the less than proportionate payments of those who die earliest, that is, die before they have experienced the average duration of life. The factors which influence a particular individual's length of life are too numerous and too generally well known to need enumeration. What we need to realize is that the interaction of these numerous forces upon numerous individuals produce a general uniformity which is the first principle upon which the practice of insurance is based. We need not attempt to assign to each agency affecting the length of life its respective

force. All we need to know in applying the theory of probability to the duration of life is that certain major forces operate upon large groups of individuals of a given age for considerable periods of time with the same or equally increasing degree of intensity. The minor forces may operate now positively, now negatively, thus counteracting each other. An example of a major force would be climatic conditions, and an example of the minor force, the character of the occupation.

In order to secure a greater uniformity in experience, insurance companies endeavor to secure a homogenous group. That is to say, they exclude individuals affected with diseases, such, for example, as tuberculosis. This is done because these individuals bring into the group agencies affecting the length of life, whose force cannot with any degree of accuracy be calculated. If, indeed, the number of individuals afflicted with any particular disease were sufficiently numerous, a certain uniformity might be disclosed so that the average duration of life of the group being known, the insurance principle might be applied to them. However, practical difficulties, not only as to sufficient numbers, but also as to determining the influence of external and internal forces, would be so great as to preclude in many cases any scientific application of the insurance principle. Such rapid advances are being made in the control of contagious diseases, the ignorance about inherited

The Necessity for a Homogenous Group.

diseases is being so rapidly dispelled, that even supposing accurate data for a homogenous abnormal group, if such a group can exist, could be collected, it would not be true of the succeeding generation of this description. The rate at which 10,000 consumptives now die would not be the rate at which 10,000 with the same disease would die ten years from now. The group to which insurance is to apply must, therefore, be fairly homogenous. Indeed, the more homogenous the group, the more scientific the insurance, and hence the more equitable will the principle work to the individual members of the group. The force of this is seen in the increasing demand that insurance companies tabulate the experience or life history of the various classes of members composing the society and adjust the charge for insurance on the basis of this experience.

It must not be forgotten, however, that insurance does not concern itself primarily with individuals as such, but with groups of individuals. Insurance is a combination of risks, and while the total risk for the company is, generally speaking, the sum of the individual risks, yet that part of the risk borne by an individual of an insured group is less than the risk borne by a similar individual not insured. Insurance is interested in learning what happens to that fictitious person, the average member of the group. It does not assume that any particular individual will live any definite number

**Insurance is
concerned
with Average
Results.**

of years. The individual may be the victim of chance. It assumes irregularity as applied to individuals of the group, but regularity as applied to the group. That is to say, of a large number of individuals certain numbers will die at certain periods, the numbers living beyond the average lifetime balancing those that die before this period. Insurance has therefore been defined as a mutual contract among those who so dread the consequences of the uncertainty of life that they will employ the aggregate regularity to neutralize the individual irregularity. From one point of view some gain, others must lose. It is from one viewpoint an individual unfair arrangement which is collectively fair.

Theoretically there is scarcely any limit to the application of the insurance principle. All that is necessary is to have a relative homogeneous group exposed to a risk, the probability of which can be calculated with some reasonable degree of accuracy. Such practical difficulties are, however, in the way that not infrequently we witness attempts to apply the principle which are little less than a gamble. However, the distinction between Insurance and Gambling is not always in the fact that phenomena cannot be observed or the data cannot be organized and expressed in scientific form. The distinction in reality is that in Gambling individuals are exposed to unnecessary risks, while in Insurance

Extent to which the preceding Principles can be applied to Life Insurance.

the risks are present and by their combination and assumption by the group, the individual is in part freed from the evil effects of their happening. Again the motives which impel man to engage in insurance and gambling are diametrically opposed. In the former case it is a desire for regularity; in the latter it is a love of the irregularity which results from the uncertainty of the game.

From the foregoing discussion it must be clear that the insurance company knows, not only the total sum that must be collected, but also the parts of the sum which will be paid out by it each year. It is, therefore, able to determine the amounts necessary to be collected each year. Disregarding for the present the compound interest accumulations, it may be said that the amount to be collected is determined by the risk, and the *risk is measured by the probability of payments demanded each year*. The risk is the difference between the amount the company has obligated itself to pay and the amount which it has reserved from the payments made by the individuals to whom it promises to pay. It is evident that the amount at risk in the early years of the company's existence is absolutely large, since it has reserved from its policyholders' payments only a small per cent of the amounts which it has obligated itself to pay. However, the risk is relatively not great, for the company has assumed in its calculation a certain death rate

The Risk in
Life Insur-
ance.

among its members and certain additions to the sinking fund or reserve from interest accumulations. Manifestly if it should be called upon immediately to pay the face value of all its policies, it could not do so. We shall see later that there is even less chance of a large number of demands being made on the insurance company than upon most other financial institutions. Nothing could cause this large demand for the face value of the policies other than a great plague. Nevertheless, the amount at risk is a question which demands consideration in its practical bearing. That is to say, the character and amount of the individual risks as such determine the character of the total risk and therefore affect the soundness of the company.

In Insurance more than in most kinds of business whatever affects unfavorably the parts, affects the whole. For example, if a company insured at normal rates a great number of under average lives, that is, individuals who did not experience the average lifetime, it would find itself in the position of having to pay obligations before the time calculated upon. It would be in a position similar to an individual borrowing money to build a factory or to finance a crop and being called upon to repay the loan before his factory was placed in operation or before his crop had been harvested. Or, again, if a company should insure for very large sums an undue proportion of individuals who died within a few

years, this would tend to impair the soundness of the company and in any event would reduce the surplus. In this connection the subject of suicide in its effect upon the risk arises and the influence is readily perceived. Most companies will not, therefore, pay the face of the policy if suicide occurs within one or two years from the date of issue of the policy.

Another practical problem in connection with the risk was suggested, viz. that of investments. The

**The Risk and
the Invest-
ments of
Life Insur-
ance.**

company has made its contracts, not only on the basis of having a certain mortality experience, but also on the basis of being able to earn a certain interest on its invested funds. The actual mortality experience may, as we shall see later, vary from the calculated, but care should be taken to keep the actual mortality somewhere near the expected. Just so the actual earnings may vary from the expected, but care must be taken to keep the funds invested so continuously and so profitably and so safely, that the investment part of the business contributes its aid in maturing all obligations of the company.

Insurance has to do with a great number of future happenings, the occurrence of which can be predicted with sufficient accuracy to determine the present action. It deals with probability and average. If, for example, the amount of the risk is widely distributed, both the probability of a general deviation of the final result from the average result and marked

single fluctuations are lessened. The same principle is applied, not only in the number of insured lives, but also in investing the funds. No company would, for example, invest all its funds in railroad bonds, however good the investment might be at any one time. The effect on the amount at risk is similar in each case, that is to say, an effort is made to secure continuous and stable results throughout the period of the contracts. No specific rules can be laid down as to the limit of the risk on individual lives or the number of such large risks which a company may safely write. It is the practice of many companies to limit the amount of insurance which is written on an individual life, the maximum in general tending to be greater, the greater the total amount of insurance on the books and the wider the distribution of risks both as to territory and kinds of contract. It can be seen, however, that other factors, such as the amount of the surplus accumulated, enter into the problem, for the range of fluctuation is a resultant of many variable factors.

A prominent authority has summed up the problem as follows : "In the first place the limit of the risk is not one which at present has to do chiefly with the solvency of the companies, for the legal reserve companies are too substantially founded and operated to cause much concern on this point. In its immediate effects it is a problem of whether the company will be able to

**The Limit of
the Single
Risk.**

distribute its dividends or fix its premiums at the point or below the point of those in the past." Again the limit of the risk in the early history of companies, should be very moderate and this for two reasons : first, because there has not yet been accumulated a sinking fund or reserve of any large amount to meet assumed obligations, and if single policies of large amounts should fall due, it would place a strain upon the general resources of the company and especially affect the dividend rate ; and second, the benefits from compound interest have not yet had time to be realized. After a time, when the business has expanded, both as to area and number and kind of policies, and the addition to the reserve has become large from the compound interest source, the limit of the single risk may be raised.

The reader will understand that the large risk is from one point of view a special risk very much the same in its influence upon the most successful operation of the company, as are substandard risks or an underaverage life. If sufficient numbers of these risks could be secured to thus make up a homogeneous group no particularly difficult problems would be presented, for a normal experience could be deduced from the individual experience which deviated positively and negatively from the normal. Certain other aspects of the risk, such as the methods of dealing with special risks are reserved for a more detailed discussion in later chapters. This statement

must, however, be considered in connection with the amount of surplus which the company has accumulated. It is a question to what extent these large and unexpected claims will reduce this surplus.

The second part of the theory of insurance has to do with the compound interest accumulations, and this may be discussed briefly at this point.

We have seen that insurance companies assume that only a small number of policyholders will die each year and that the reserve fund will be augmented each year by its interest earnings. The reserve is the sinking fund accumulated out of premium payments for the purpose of meeting obligations as they fall due. Since the life insurance contract is a monetary obligation extending over a long period of time, this interest accumulation is a very important part of the principle upon which the companies operate. It is these interest accumulations which determine in part the premiums to be charged. The rate to be earned in the future is necessarily a subject for estimation, and great care must be taken in fixing a conservative rate which can be attained in experience.

Compound
Interest Cal-
culations.

The most important point to understand in connection with the interest accumulations is that it is not a simple interest accumulation, but a compound interest accumulation. That is to say, the yearly interest earned on a premium paid in is not only added to it and draws interest the second year,

but at the beginning of the second year another principal — the premium — is added and with the original principal draws interest. For example, \$100 invested for one year at 4 per cent yields \$104. If the principal sum the second year is the original one plus the interest, it becomes at the close of the third year \$112.48, whereas at simple interest the sum would merely be \$112. A continuation of the calculation would show that the difference between simple and compound interest grows greater with time, so that, for example, at the fortieth year the difference between the two interests for \$100 is \$220.10, that is, \$100 at compound interest would amount to \$480.10, while at simple interest it would amount to \$260. But the above illustration does not represent the actual facts in regard to the finances of an insurance company, because each year it receives from the policyholder another premium which is added to the previously received premiums and their interest accumulation. This, then, constitutes a new principal upon which interest is earned.

The \$100 sums paid thus and invested at 4 per cent would amount at the close of the fourth year to \$141.63, whereas the interest on an original and single payment of \$100 with its interest accumulations compounded amounts only to \$116.98. The amount of \$100 yearly payments with the payments and their interests compounded each year can be calculated from the simple algebraic formula for n years as follows : —

$$1 + i \frac{R^n - 1}{i},$$

in which 1 equals the principal sum, i the interest, n the number of years, and R the principal sum plus the interest. But a company must not only know that it can accumulate funds at a certain rate, but also what sums it must collect upon which interest is to be accumulated. That is to say, knowing from the mortality table that a certain number of deaths will occur each year and knowing, therefore, that the total payments to be made are the sums named in the policies of those dying, it must know what sums invested at a certain rate of interest will amount to the total face value of the claims made. Concretely, the question is, if \$100 is to be demanded one year from now, what sum invested at 4 per cent will yield \$100? This is the simple problem of calculating the present worth of a future sum.

The problem is solved as follows: —

$$\frac{100}{104} = \$96.15.$$

The present worth in two years is \$92.46, and likewise the present worth for any number of years is found by the general formula

$$v^m = \frac{1}{(1+i)^m},$$

in which v^m is the present value of \$1 due in any number of years, i the interest, and m the number of

years for which the calculation is made. The application of this principle will be explained when the subject of premiums and premium calculation is considered. We thus see that the science of life insurance is based upon calculations involving mortality statistics and compound interest earnings. It is a combination of the theory of probabilities and the principles of finance.

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CHAPTER III

MORTALITY TABLES

IF the reader seeks to understand the principles upon which life insurance is based and practiced, he must thoroughly grasp the significance of the mortality table. The discussion of the theory of insurance given in the preceding chapter is therefore continued in this and the succeeding chapter, in which the practical application of the theory of probabilities is treated.

A mortality table is a table which shows the number of persons remaining alive at each age out of a given number and also the number dying during each year of age. It is "the instrument by means of which are measured the probabilities of living and dying." The table does not show the actual individual experience of the group at each age, but an average with the deviations reduced. The number upon which the experience is based, usually 100,000, is called the radix of the table. A table may commence at any age, but usually begins at 10 with the upper limit at 100 years. The sources of the data from which such tables are constructed are usually either general

Character
and Origin
of Mortality
Tables.

population statistics or statistics of insured lives. We therefore have the two chief classes of tables, the general or population tables and the select tables of mortality. Manifestly the early tables were of the first kind, and we have already described the use which was made of the incomplete and incorrect data of the London Bills of Mortality.

The Breslau table, drawn up by Halley was a population table. The Northampton table, drawn up by Dr. Price in 1783 was also of this description. However, in neither case was there an enumeration of the general population. Both were based chiefly on the records of death. In two provinces of Northampton Dr. Price had a record of the baptisms as well as of the deaths. These tables were unreliable, for even now in many parts of modern nations vital statistics are not taken with sufficient care and resultant accuracy to serve as a basis for the deductions found in a really scientific mortality table. The element of error was much greater in these early times when the practice of taking vital statistics had scarcely begun. There are so many variable factors which affect the birth and death rate in a population, such, for example, as movements of population, occupations, sex and age, composition of the group, misstatement of age, etc., that great care is needed in deducing general principles.

The Carlisle table drawn up in 1815 by Joshua Milne was another population table, but it was much

more accurate than the two preceding tables. It was based upon the population of two parishes in the town of Carlisle, England, and the deaths during a period of eight years. This table has been generally superseded by later tables for the purpose of insuring lives, although it is sometimes used for the calculation of survivorship benefits. The statistics on which it was based were made up of a greater number of females than males and therefore introduced an element of error for the insurance of males, the sex to which insurance was largely confined. The Northampton table is also yet used in some states by the courts for ascertaining the value of annuities.

As soon as life insurance companies were formed, their tabulated experience on insured lives supplied the data for constructing more accurate **Present Tables in Use.** mortality tables. The common errors in population statistics are almost entirely absent in the statistics of insurance companies, for among other advantages, the company knows the ages of those taking out insurance, and the ages at death. They are thus able to have under continual observation a great number of individuals at various ages and when the observations of several companies are combined, the data are more accurate. In 1843 the English Actuaries' or the Combined Experience Table was published. This was based upon the experience of seventeen life insurance companies which included the history of 84,000 policies between the years 1762

and 1833, of which 14,000 were terminated by death. The experience of males and females was separated, the table showing a lower death rate for the latter between the years 20 and 50. Later statistics have somewhat modified the conclusions of this table.

This table is becoming less generally used, especially in the United States, where the American Experience Table of Mortality is generally used. The American Experience Table is the one prescribed by the laws of most states as the basis for the valuation of policies issued since January 1, 1901. Most policies issued previous to this date are valued on the Actuaries' Table. The American Experience Table was the work of an actuary, Sheppard Homans, who derived it for the most part from the experience of the Mutual Life Insurance Company of New York. It was published in 1868. It represents with considerable accuracy the experience of insured lives after the benefit of selection has passed, that is, after the lower death rate, due to a recent medical examination, has passed. It is assumed that this benefit disappears after about five years.

When mortality tables are calculated, showing the benefits of this medical selection during each of the five years, they are called Select Mortality Tables in contrast to Ultimate Mortality Tables, which are those from which the experience of the first five years has been eliminated. The term "Select Tables" is used in two other senses :

**Select and
Ultimate
Tables.**

(a) a table based upon the experience of insured lives, since these may be considered as constituting a select class ; and (b) a table based on the specific experience of groups of the same age at entry and duration of insurance. This last is simply a greater degree of selection in that the intermixing of the different rates of mortality of different ages and duration of insurance is avoided. If sufficient numbers for each age could be secured, this would make possible the most scientific insurance. With the increasing accuracy of vital statistics in modern nations and the increased experience of insurance companies, both as to numbers of lives insured, different ages of policyholders represented, duration of insurance, and increased amount of insurance taken, more accurate mortality experiences of different classes are being obtained.

Dr. Farr drew up the Healthy English Table from the English Census of 1851. It was based on the records of births and deaths in sixty-three of the healthiest registration districts of England and Wales. Still another is the *H^m* or Healthy Males Table, based upon the experience of twenty British companies. This table is very generally used in Canada. It was published in 1869 by the British Institute of Actuaries. This same association has made a careful investigation of insured lives between the years 1863 and 1893 and published the results in tabular form. The investigation also included a

record of the influence on mortality of classes as affected by duration of policy, kind of policy, and withdrawals. The Imperial Statistical and Insurance Departments of Germany have issued new life tables which are based upon elaborate and carefully collected statistics covering the decade 1891-1900. The thoroughness of the investigation is indicated by the statement that it included the decade history of about 50,000,000 lives and over 11,000,000 deaths.

The National Fraternal Congress Table — the N. F. C. Table — is a result of the work of the committee on statistics of the National Fraternal Congress, which published in 1899

The Fraternal Congress Tables.

the result of its investigations of the mortality experience of persons insured in fraternal societies. The rates of mortality of this table are much lower than the rates in the American Mortality Table. For example, the mortality rate in the N. F. C. Table at age 20 is 5 per 1000 lives and in the American Table 7.81; at 40 in the former table it is 7.17 and in the latter 9.79; at 60 in the former 22.75 and in the latter 26.69. The fraternal orders can conduct the business of insurance more cheaply than the commercial companies only by making a better selection of lives, by earning greater interest, or by doing business at a lower expense. Of these possibilities only the last is a probability, and this in its highest realizations is often not sufficient to equal

TABLES OF MORTALITY

ACTUARIES' OR COMBINED EXPERIENCE TABLE OF MORTALITY.			AMERICAN EXPERIENCE TABLE OF MORTALITY.		ACTUARIES' OR COMBINED EXPERIENCE TABLE OF MORTALITY.			AMERICAN EXPERIENCE TABLE OF MORTALITY.	
At Age.	Number Surviv- ing.	Deaths.	Number Surviv- ing.	Deaths.	At Age.	Number Surviv- ing.	Deaths.	Number Surviv- ing.	Deaths.
10	100,000	676	100,000	749	55	63,469	1,375	64,568	1,199
11	99,324	674	99,251	746	56	62,094	1,486	63,864	1,260
12	98,650	672	98,505	748	57	60,658	1,497	62,104	1,325
13	97,973	671	97,762	740	58	59,161	1,561	60,779	1,394
14	97,307	671	97,022	737	59	57,600	1,627	59,385	1,468
15	96,636	671	96,285	735	60	55,973	1,698	57,917	1,546
16	95,965	672	95,550	732	61	54,275	1,770	56,371	1,623
17	95,293	673	94,818	729	62	52,505	1,844	54,748	1,713
18	94,620	675	94,089	727	63	50,661	1,917	53,030	1,800
19	93,945	677	93,362	725	64	48,744	1,990	51,230	1,889
20	93,268	680	92,687	723	65	46,754	2,061	49,341	1,980
21	92,588	683	91,914	722	66	44,698	2,128	47,361	2,070
22	91,905	686	91,192	721	67	42,565	2,191	45,291	2,158
23	91,219	690	90,471	720	68	40,374	2,246	43,188	2,248
24	90,529	694	89,751	719	69	38,123	2,291	40,990	2,321
25	89,835	698	89,082	718	70	35,837	2,327	38,569	2,391
26	89,137	703	88,314	718	71	33,510	2,351	36,178	2,448
27	88,434	708	87,596	718	72	31,159	2,362	33,730	2,487
28	87,726	714	86,878	718	73	28,797	2,358	31,243	2,505
29	87,012	720	86,160	719	74	26,439	2,339	28,738	2,501
30	86,292	727	85,441	720	75	24,100	2,303	26,237	2,476
31	85,565	734	84,721	721	76	21,797	2,249	23,761	2,431
32	84,831	742	84,000	723	77	19,548	2,179	21,330	2,369
33	84,089	750	83,277	726	78	17,369	2,092	18,961	2,291
34	83,339	758	82,551	729	79	15,277	1,987	16,670	2,196
35	82,581	767	81,822	732	80	13,290	1,866	14,474	2,091
36	81,814	776	81,090	737	81	11,424	1,730	12,388	1,964
37	81,038	785	80,353	742	82	9,694	1,582	10,419	1,816
38	80,258	795	79,611	749	83	8,112	1,427	8,608	1,648
39	79,458	805	78,862	756	84	6,635	1,263	6,955	1,470
40	78,653	815	78,106	765	85	5,417	1,111	5,485	1,292
41	77,838	826	77,341	774	86	4,306	958	4,193	1,114
42	77,012	839	76,567	785	87	3,343	811	3,079	933
43	76,173	857	75,782	797	88	2,537	673	2,146	744
44	75,316	881	74,935	812	89	1,864	545	1,402	555
45	74,435	909	74,173	828	90	1,319	427	847	385
46	73,526	944	73,345	848	91	892	322	462	246
47	72,582	981	72,497	870	92	570	231	216	137
48	71,601	1,021	71,627	896	93	339	155	79	58
49	70,580	1,063	70,731	927	94	134	95	21	13
50	69,517	1,108	69,804	962	95	89	52	8	8
51	68,409	1,156	68,842	1,001	96	37	24		
52	67,253	1,207	67,841	1,044	97	13	9		
53	66,046	1,261	66,797	1,091	98	4	3		
54	64,785	1,316	65,706	1,143	99	1	1		

the difference in the mortality rate upon which the premiums are based.

Such a mass of information regarding vitality is being collected and such improvements are being made in collecting vital statistics, that we may expect new and more accurate life tables to be supplied from time to time. Such in brief is the history of mortality tables, and it is now our purpose to show in a general way how the tables are constructed and to describe the actual experience under them.

On the preceding page the two tables of mortality most commonly used are given, and the reader should familiarize himself with their contents. Some explanation of the tables and terms used in connection with them may be given. It will be observed that the tables contain three columns, the second showing the number of persons living at each age, and the third the number dying at each age.

A mortality table is, therefore, both a life table and a death table. A mortality table has been defined as a picture of a generation passing through life. It is the "barometer of vital statistics." The table is constructed by recording the ages of as great a number of persons as possible at a specified time and then tabulating opposite each age the number who live to that age, the deaths being placed opposite the ages at which death occurred. The probability of death at a particular age is obtained by dividing the number of deaths at

**Methods of
constructing
Mortality
Tables.**

that age by the number living at that age. If, then, the number living at the age at which the table begins is multiplied by the probability of dying at that age, the result will be the number of deaths. Then, subtracting this result from the number living at the age, the number of survivors is obtained. This multiplied by the probability of dying in the next year will give the deaths, and so the calculations are continued to the end of the table. Symbols are used in the calculations. Age is represented by x , the number reaching the age by lx ; the number who die between x and $x + 1$ is represented by dx .

If we could have a large number of persons who were born on a certain day and keep them under observation until all had died, we would have all the above data. This is manifestly impossible; nor is it necessary in order to find the probabilities of death and survival. If we have under observation a large number of individuals whose age is known, we can, by noting the age at death, calculate the above probabilities. In the first place we must calculate the probabilities of survival and death for each year of life, and the first step in doing this is to observe the number who begin any year of life and the number of deaths which occur during that year; that is, dx divided by lx equals qx , the probability of dying during the year; likewise the probability of living, px equals $lx + 1$ divided by lx . However, in the above case the deaths will occur at different times through-

out the year ; that is, some will die just beyond age x and some will die just preceding age $x + 1$. If we assume the deaths to be equally distributed throughout the year, we can secure the arithmetical mean by calculating the number who live to the middle of the year. This mean population is called P_x . If, then, we divide this average population, P_x , into the number of deaths during the year, that is, $\frac{dx}{P_x}$, we will have the rate of mortality per unit of population for this year, that is, the central death which is called m_x . From this central death rate we may calculate the probabilities of death and survival in the following manner.

We have already seen that the probability of a particular event happening is found by dividing the number of possible desired happenings by the total number of possible happenings. If there are 7 balls and 2 are white, the probability of drawing a white ball at a single trial is $\frac{2}{7}$. We have seen, therefore, that $px = \frac{lx + 1}{lx}$ and $qx = \frac{dx}{lx}$. We therefore calculate px and qx from m_x by the following simple formula : —

$$px = \frac{lx + 1}{lx} = \frac{lx - dx}{lx} = \frac{Px - \frac{dx}{2}}{Px + \frac{dx}{2}} = \frac{2 - m_x}{2 + m_x}.$$

The relation between the probabilities of life and the rate of mortality having been obtained and the ratio

of mx for all ages having been obtained from the census returns, the value of px can be obtained from the formula. Thence by continued multiplication a life table can be constructed. A brief application may be made for age 10 of the American Experience Table.

$$\text{Since } px = \frac{2 - mx}{2 + mx}, \text{ therefore } px = \frac{2 - .007490}{2 + .007490},$$

which equals .992510; the yearly probability of living, and this multiplied by the original 100,000 at age 10 gives 99,251, the second quantity in column one of the Mortality Table.

We have assumed in the preceding statements that the population and the deaths at each age were known, but such is not usually the case in census statistics which generally give population and deaths in groups of ages. Even if it were so, any one census year might be so affected by the peculiar conditions of that year, that it would produce inaccurate results. It is, therefore, conducive to accuracy to take the average for a series of years and from these data secure by interpolation the annual values. The mean annual death rate for a series of years, say 10, is calculated as follows: C_1 equals the death rate for the first year in population, n , and C_{10} equals the death rate for the tenth year. Therefore, the mean annual death rate for a series of 10 years is found as follows: —

$$C = \frac{c_1 n_1 + c_2 n_2 + \dots + c_{10} n_{10}}{n_1 + n_2 + \dots + n_{10}} = \frac{d_1 + d_2 + \dots + d_{10}}{n_1 + n_2 + \dots + n_{10}}$$

It is next necessary to find the total lives at risk for the decade or quinquennial period. This is equal to **The Lives at Risk.** the population of the second census minus the population of the first census, divided by the annual increase per unit of the population. After having obtained the mortality for the group during the period and the total lives at risk during the period, the mortality and lives at risk for each year of the period must be calculated. This is done by interpolating the values for each year, by the method of finite differences, or by the graphic method. Each of these methods is of little value to other than those interested in actuarial science.

As has before been intimated, the insurance companies do not derive the mortality tables which they now use from the population statistics of the general census, but from the experience of insurance companies. The data from the last-named source are more accurate, since they make greater efforts to secure the correct age at entry, and know definitely the age at death. However, the principles of procedure in using the data are the same.

The phrase "expectation of life" needs explanation at this point. It does not in the first place mean the **Expectation of Life.** number of years one can reasonably expect to live after a certain age. It simply means the number of years that individuals of a certain class live on an average after a certain date. It is the mean after lifetime. It would, for example,

be erroneous for a person at age 40, when the expectation of life is 28.18 years by the American Mortality Table, to conclude that his probable age at death would be 68.18 years, for the most probable time of death is that year beyond 40 when most deaths occur.

Another term frequently used is "the probable lifetime," which is simply the number of years that an individual has an even chance of living. **The Probable Lifetime.** It is found by observing at what age beyond the specified age the number then living is reduced one half. For example, the number living at age 30 is by the American table 85,441. At age 68 there are living 43,133, and 40,890 are living at age 69. Therefore, the probable lifetime of a person at age 30 is between 38 and 39 years, which is over three years greater than the expectation of life at age 30.

Even after a rate of mortality has been found, either from general population statistics or from the experience of insured lives, the actual mortality of the insured group does not usually correspond to this rate in any single year. It has been particularly difficult to derive a table in which the actual mortality closely corresponded to the calculated mortality in very early and very late life. This in no sense invalidates that general law of mortality which is expressed in the mortality tables. These tables have been graduated, by which the accidental irregularities

are smoothed out. The important practical consideration of this fact is expressed in the questions, how many lives need a company insure in order to secure these average results of a mortality table, how wide a fluctuation can be permitted, and how can it improve the personnel of its membership in order that it may continue a solvent concern? If it is to be called upon to pay a larger number of claims before it had calculated that they would fall due, it may fail, both because the principle sum already collected will probably prove insufficient and in addition the force of compound interest has not had time to produce its contribution to the resources of the company.

The first problem, that of the number of lives necessary to be insured in order that the actual number of claims by death may be confined within certain limits of the expected is solved as follows: If the probability of an event occurring at a single trial is d , it will probably happen in m trials dm times. It has been proven that the probable magnitude of the deviations from dm can

**The Number
of Lives to be
Insured.**

be expressed by the following formula:— $\sqrt{\frac{2}{\pi}mdp}$

in which π equals 3.14159, m the number of trials or lives under observation, p the chance of surviving one year at the given age, and d the probability of dying during the year. An application may be thus made. In the American table assume there are 20,000 lives at risk at age 41, where d is .01, the

expected percentage of survivals being therefore .99. The probable extent to which the actual result would differ from this is obtained from the formula thus:—

$$\sqrt{\frac{2}{3.1416}} 20000 \times .01 \times .99,$$

which equals 11.2. That is to say, the deviation of deaths from the expected 200 would probably be 11.2, the experienced mortality varying between 189 and 211. Equally simple is the problem of calculating the number necessary to be under observation in order to keep the actual experience within a certain percentage of the expected.

The reader must have realized that a number sufficient to display average results must be secured. Insurance deals with the law of average as applied to a considerable group. It would be absurd to attempt to conduct the business with a score or more of members, and doubly absurd if they were of the same age, sex, and occupations. In actual practice the companies expect to have a favorable mortality experience; that is, they make such calculations and allowances as they think will procure for them an actual mortality well below that shown by the table for the respective ages and groups. From this source come what are called mortality savings. In companies writing policies, the holders of which receive dividends based on the earnings of the companies, this saving is one of the sources of the fund from

which dividends are paid. These dividends, as we shall later see, are not dividends in the ordinary sense in which this word is used, but are, so far as this mortality savings is concerned, simply the return of overcharges. The difference between the expected mortality on the net amount at risk and the actual mortality less the reserve thereon is the mortality saving. In determining the expected mortality for a given calendar year, the old business is assumed to be exposed for the full calendar year; the new issues of business of the calendar year are assumed to be exposed on an average for only one half the year; the cancellations of the old business are assumed to be exposed for one half the year; and the cancellations of the new business are assumed to be exposed for one fourth of the year.

Statistics for the past ten years of the ordinary legal reserve and the legal reserve industrial companies show the following facts. In the case of thirty-two of the most important ordinary legal reserve companies the average mortality was 75.43 per cent of the expected, varying, however, from 52.24 per cent to 92.52 per cent. Thirteen of these thirty-two companies experienced a mortality saving of over 30 per cent. In the three leading industrial companies the average for the past ten years of the actual to the expected mortality was 104.05 per cent. Only one of these companies, and this the least important, had an actual experience below the expected. In

the fifty leading ordinary companies the percentage of the actual to the experienced mortality in 1909 was 72.16 per cent.

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CHAPTER IV

THE SELECTION OF LIVES

THE description given in the preceding chapter of the principles underlying the mortality of lives and the facts which the experience of insurance has disclosed might lead the reader to conclude that the actual conduct of insuring lives is very simple. However, the first problem which confronts the officials of an insurance company is that of securing a body of individuals whose life experience as insured persons will be in harmony with the principles which have been discussed in connection with the mortality table. Great care must be continually exercised in insuring lives in order that the actual experience will be within reasonable limits of the calculated. It is even more true of the insurance business than of other kinds of business that it should be able to be conducted on the plans laid down before entering upon the actual business. In almost every business adjustments can be made from time to time to bring the original plan in harmony with unexpected changes in the nature of the business; but in insurance the contracts are not only made for long periods, but also with great numbers of individuals. Therefore, adjustments can be made only with great difficulty.

The first problem, then, in placing the principles of insurance into practice is to select suitable lives for insurance. By selection is ordinarily **Selection** meant that examination of applicants by **Defined.** competent physicians in order to exclude all whose present or prospective physical conditions or mental characteristics are below the standard required by the insurance society. This medical examination is, then, one of the methods devised to prevent adverse selection, that is, the conscious or unconscious attempt to secure insurance by persons who are undesirable risks. Another method used by the company to prevent adverse selection is the incorporation of certain protective clauses in the contract, such, for example, as the suicide clause which frees the company from liability if the insured commits suicide within a certain period, usually one or two years. Adverse selection is again illustrated in the tendency of individual poor risks to select the cheaper plans of insurance, and again in the case of those seeking to defraud the company. Anything which adversely affects the company's interest in so far as it is interested in securing a group of individuals who will experience the normal experience is adverse selection. That is to say, the effort on the part of the company is to secure a group of persons who will have equal chances of risk and benefit from insurance.

The lives thus chosen by the company through its agents, who are supposed to exercise good judgment

in soliciting applicants, and the medical examiners, who carefully examine them, are called select lives. It has been found from long experience in insuring lives that the rate of mortality among the recently insured is lower than among the general population or among a noninsured group of equal ages which has healthy and unhealthy individuals among it. Not only is this true, but it has been found that an insured group recently selected has a lower mortality rate than a group of insured lives of equal age but of longer duration of insurance. For example, 1000 individuals insured at 30 years of age would show for a period of about five years thereafter a lower mortality than the mortality shown for the next five years of 1000 individuals, insured at 25 years of age, but now 30. This temporary advantage to the company is called the **Benefit of Selection Defined.** benefit of selection. This advantage enables a company to use as expenses or as dividends, which may be used to reduce the premiums, the funds thus saved, since this selection means the actual losses will be below the calculated. It is the experience after five years which is used as a basis for operating the company. This favorable mortality on recently insured lives also explains why newly formed companies or companies which are increasing their numbers rapidly have frequently such a low percentage of actual to expected mortality.

The explanation of the causes of this lower mortal-

ity among recently insured lives is largely in the fact that chronic diseases have not had time to develop and produce their results. The deaths are chiefly due to accidents and to those acute diseases which rapidly produce death. Then, too, acute diseases developing in the early period often become chronic with fatal results at a later period. The rate of mortality, then, among insured lives is, all other things being equal, a result of the age at entry and the duration of membership. The following table adapted from Young's Insurance clearly illustrates the above facts regarding the mortality at different ages and different duration of insurance.

ANNUAL MORTALITY RATE PER 1000 IN PERIODS OF
INSURANCE

Ages in quinquennial groups.	Under 5 years duration.	5 years and upwards.	Under 10 years duration.	10 years and upwards.	Total period of life.
25-29	6.60	10.	7.30	9.20	7.30
35-39	8.30	11.	9.30	11.70	9.70
45-49	11.70	14.40	12.50	15.20	13.60
55-59	18.10	24.70	21.	25.20	23.50
65-69	36.30	50.60	43.50	51.10	49.

The rate of mortality for those who have not been insured five years, column 2, is less than those who have been insured less than ten years, column 4, and still less than those insured for more than ten years,

column 5. A study of this table will disclose additional important facts regarding the effect of introducing new lives in the different quinquennial periods.

The annual rate of mortality at any age is found, as we have shown in the previous chapter, by dividing the number of deaths occurring in the year following this age by the number of thousands exposed to death at the beginning of the year.

Many adherents to the assessment plan of insurance have depended upon the introduction of new blood to keep down the increasing death rate. It will be observed, however, that the benefits are of a decreasing character as the original group becomes older, for the new entrants at the older ages make up such a small part of the whole mass of lives at the increasing age. The older ages are accumulating at a geometrical ratio, and the number of new lives necessary to keep the mortality experience down to that of the earlier ages would have to be very great; so great, in fact, that in actual experience no company on the assessment plan has been able to secure sufficient numbers to keep its mortality experience to that of the earlier years. It is not to be understood, however, that the entrance of young lives does not favorably affect the mortality, but rather that this method cannot be relied upon to correct the errors of unscientific plans of pure assessment insurance. It must also be evident to the reader that if lives were insured on the

Effect of In-
troducing
New Lives.

basis of mortality tables constructed on the experience of insured groups at different ages, the individual who insured at an advanced age would pay relatively a larger premium than those who insured earlier in life. That is to say, the benefit of selection is less at advanced ages than at earlier ages. The premium for young lives is established on the expectation that there will be a continual infusion of new blood and these young lives thus receive through many years the benefit of selection from many groups.

There is another kind of selection in insurance which may be called self-selection, that is to say, a selection not made by the insurer, but by **Self-selection** the insured. This has been instanced in **tion.** the case of an applicant selecting particular forms of policies. If it is a poor risk and the applicant is conscious of his impaired life, he is likely to select the policies with low premiums. If he intends to defraud the company, he will make the same selection. It is, therefore, necessary for the company to make its selections as accurate as possible; that is, it must require medical examination, and take precautions to discover the true facts about the applicant. It is true, indeed, that in certain forms of *compulsory* insurance of foreign countries for the wage earners no medical examination is made, but in these cases the insurance is required of all members of the group, and since the group is homogenous to a large degree,

selection has already been made. Average results are for these two reasons secured.

The Medical Examination. In the early history of insurance there was no medical examination, but this did not imply that there was no selection. No evil consequences were experienced from this absence of a medical examination, for the applicant was recommended to the company by a responsible person. He was often questioned by the officials of the company as to his physical condition; insurance was in general taken out only by the better classes; competition for business was not very extreme; and lastly the mortality tables used had a wide margin of safety. The actual process of selection now made by an insurance company is usually as follows: The agent seeks the applicant, who may be asked to answer certain questions regarding his physical condition and family history. If the facts disclosed by these answers are decidedly unfavorable, that is, if he is ill or has recently been ill or belongs to a family which has had numerous members who have been afflicted with certain very fatal diseases, such as tuberculosis, the applicant is not sent to the medical examiner; otherwise, he is. The latter asks him more detailed questions regarding his physical history and that of his family, and in addition makes a thorough physical examination. Efforts are also made to secure information as to the use of alcohol and narcotics. The medical ex-

aminer makes a complete report of his findings to the medical department of the company at the home office. Efforts may also be made by the company through independent inquiries and references supplied by the applicant to discover the personal habits of the applicant, his financial responsibility, and other facts which will supply information to decide the desirability of the risk.

The mortality table assumes that all members of the company enter it in good physical condition, and premiums are based on this assumption. It is the duty of the medical department to make the actual facts correspond to the assumed facts. If all the information elicited is satisfactory, a policy is granted. If the amount applied for exceeds the limit fixed by the company on a single life, the company may accept the application and reinsure a part of the risk in another company. That is, it takes out a policy payable to itself in another company for the amount in excess of what it cares to insure a single life.

A convenient classification of risk for purposes of discussion, but one which has no legal sanction in the case of ordinary insurance companies, is as follows: —

(a) Preferred risks. These are risks which when not affected by the occupation are insurable under any plan of insurance. The individuals composing this class have good physical conditions, weight and height within the standard established, correct habits,

Classifica-
tion of Risks.

good family history, which means a low mortality under 70 and freedom from constitutional and hereditary diseases.

(b) Ordinary risks. These applicants are frequently required to take that form of policy which will bring the premium paying period within 75 per cent of the life expectation. This is done in order that the possible large claims due to a high mortality will not overbalance the sums paid in by this class and the accumulations on it. Individual members of this class must be in first-class physical condition when insured, but there may be a tendency in the family to certain diseases; they may be persons who have lost a limb, persons of mixed races; persons who have had remote attacks of such diseases as asthma, inflammatory rheumatism, pneumonia, and in some cases blood-spitting, if not recent, provided the family history is good. The preferred and ordinary risks include the vast majority of insured lives, and it is these classes upon which insurance calculations are chiefly made.

(c) Doubtful risks. This class includes a great number of individuals and for a great many various reasons. One of the most important classes is overweights and another underweights; another class is those who are addicted to the use of alcohol or narcotics, although if the amount used of either is in excess of a certain quantity, such persons will not be accepted as risks on any plan of insurance. It is not only because the use of alcohol and narcotics under-

mine the physical constitution, thus making the individual more subject to disease and less able to resist its attacks, but also because to such individuals fatal accidents are more likely to happen at those times when reason is dethroned on account of the excessive use of the alcohol or the narcotic. In other words it is a question to what extent the shorter duration of life of those who use alcohol is due to the destructive effects of the alcohol and to what extent it is due to their careless mode of living of which the use of alcohol is the tangible evidence. Underweights and overweights ordinarily demand special treatment. The companies use a comparative table of height and weight. For example, applicants 5 feet 10 inches in height between 30 and 39 should weigh by the table between 134 and 200 pounds, the normal weight being 167, which thus makes a provision for a deviation of about 20 per cent. However, if it can be shown that the abnormal weight is a family characteristic, the variation is of little importance, all other things being equal.

One authority gives the following reasons for underweights being poor risks :—

(a) They are abnormal and die short of their expectation.

(b) They are prone to tuberculosis and nervous diseases.

(c) They are frequently underfed and overworked and suffer from dyspepsia and indigestion.

The overweights are poor risks because : —

(a) They are abnormal.

(b) They are prone to develop heart disease, apoplexy, and premature arteris scelorosis, diabetes, rheumatism, and gout.

(c) They frequently take little exercise, eat heartily, and are often intemperate in their use of malt liquors.

(d) They frequently succumb to accidents and surgical operations.

Companies very often grant to young applicants who show underweight or overweight a form of policy which matures before the serious evil effects of this abnormal weight shows itself, such, for example, as a twenty-year endowment policy at age 25 which is completed at age 45. They thus are treated as standard lives. In other cases particular forms of a policy have been granted to the applicant of abnormal weight with the restriction as to certain benefits which ordinarily are a part of the contract. Sometimes these applicants are permitted to receive participating policies only on deferred dividend plans of 5 or 10 years or on a longer period of distribution, but not annual dividends. Sometimes they are granted only paid up insurance instead of extended insurance in case they lapse their policies. Other methods of treating substandard lives will be discussed later.

Other factors which determine the class to which a particular risk belongs are occupation, sex, race, regions inhabited, family history, mental and moral

characteristics, and each of these calls for a brief discussion.

The character of the occupation is important in that it may be extra hazardous as to accidents or it may be unhealthy. It may be stated at this **Occupation** point that the occupation statistics as to **Mortality**, morbidity and mortality are very incomplete and inaccurate. We doubtless ascribe to certain occupations a degree of danger, both as to accidents and unhealthfulness, which they really do not have. For example, there are certain occupations which are the refuge of the aged and manifestly the death rate is high, but it does not follow that the high death rate is to be ascribed to the character of the occupation. It is never safe to make any deductions of the vital statistics of occupations until one knows the age and sex composition of the individuals employed in the occupation. Nevertheless, it is the practice of insurance companies to classify occupations as to their hazard. For example, an aeronaut or a submarine diver will not be insured by many companies and by practically none, except at a very high premium; the occupation of a railroad engineer is more hazardous than that of a bank clerk; that of a soldier more hazardous than that of a farmer. That is to say, extra premiums may be charged for extra risks. But the general practice is to permit a change of occupation after insurance is granted without any change in the premium. This is due in part to a better knowledge of

the real difference in the hazards of different occupations and especially to the competition among companies to make their policies attractive to prospective buyers by a liberalization of the contract through taking off many former restrictions.

As to sexes it may be said that women as a class show a lower death rate, especially in the later years than men do. This is the reverse of what **Sex Mortality.** is true in the experience of insured males and females.

The statistics of insured women seem to indicate a higher mortality for married women during the childbearing period than for men or unmarried women of the same age. The practice of companies in insuring women is not uniform. Some accept women at all ages on the same terms as men. Some require an extra premium; some accept them after the childbearing age has passed; many accept them only when they are self-supporting in order that there may be no question as to the insurable interest in their life. With the growing freedom of the sex, doubtless there will be more demands from women for insurance on the same terms as men. It is urged that there is more of a hazard in the case of women than in the case of men for the reasons that: (a) there is more of a tendency on the part of women to understate age in the early years; (b) that a certain delicacy on the part of women, as well as the medical examiner, prevents as thorough a medical examination as in case of men; (c) that childbearing introduces an extra hazardous

factor; (d) that the possession of dependent children also may bring in the question of moral hazard in the case of the widow who is anxious to secure protection for her children in case of her death.

Sex mortality for all ages is indicated in the following table, taken from Newsholmn's Vital Statistics and referring to the *population* of England during 1891-1895.

MEAN ANNUAL RATE OF MORTALITY PER 1,000 OF
EACH SEX

	MALES.	FEMALES.
Under 5	62.1	52.
5-10	4.5	4.5
10-15	2.5	2.7
15-20	4.0	4.0
20-25	5.3	4.9
25-30	7.2	6.7
35-45	12.2	10.3
45-55	19.8	15.3
55-65	36.3	29.8
65-75	71.9	62.8
75-85	149.9	136.1
85 and up.	290.6	263.8

It will be observed that this table indicates an especially favorable mortality for females in later life. The problem of adjusting the premium for the hazard of childbearing is not difficult. Knowing the mortality due to childbirth, the extra premium may be readily calculated.

The hazard due to races can be determined with increasing accuracy as the vital statistics of races become more accurate. In the United States **Race Mortality.** the vital statistics of the registration area show a higher mortality among negroes than among whites. The causes for this condition are too well known to need description. The greater ignorance of the negro race, not only as to sanitary living, but also as to their correct age adds another element to the normal hazard. Some companies practically refuse to accept negroes. This is done in various ways, such, for example, as not giving the agent any commission for writing the policy; others discriminate against them in the examination. Many states enacted laws after the Civil War requiring companies to accept negroes on the same basis as whites in the belief that they were thereby enforcing the spirit of the fourteenth amendment, but in practice such laws can easily be evaded.

The hazard connected with regions becomes important in conjunction with or without the race hazard. Some companies solicit insurance **Regional Mortality.** only in certain states on the principle that the mortality rate is lower in some states than in others. Care must also be exercised in thus ascribing unhealthiness to certain regions without knowing the age composition of the inhabitants of the region. All other things being equal the death rate will be lower in newer regions than in long settled regions.

This is due to the fact that the inhabitants of a new region are a vigorous class with a lower average age. Few of the insurance companies solicit business outside of the United States, and many of them have required until the last few years an extra premium for residence or travel in the tropics or polar regions.

The refusal of companies to insure lives in certain regions may be due to the unhealthy climate, to the absence of definite knowledge concerning the conditions of life in the region, to a difference in social ideas of the regions, or to the particular legal requirements. It is not infrequent, for example, to have a company cease writing insurance in a state on account of some particular legal requirement which the officials of the company consider unduly burdensome. The hazard due to inheritance or family history is, to a certain degree, of decreasing practical importance. With the advance of the medical science we are coming to realize that many diseases formerly considered as inherited are not of this description. Moreover, even though there is a tendency to acquire certain diseases on account of the inherited physical constitution, care and attention to living in early life often prevents any fatal consequences. In the past it was the practice in collecting mortality statistics to ignore all that precedes death, such, for example, as the cause of death and duration of illness. This even yet is largely the practice. As a conse-

quence the prevalence of most diseases cannot be accurately known.

It is always fallacious to assume any fixed ratio between morbidity and mortality. A certain disease is said to be twice as fatal as another, but this is not an accurate statement, as it is ordinarily made, since in the same disease the number of cases of sickness and death vary at different times and with various classes. The highest ratio of sickness is often found with the lowest number of fatalities, as, for example, in the case of mumps. Then, too, vital statistics do not accurately inform us as to the amount of sickness and from the viewpoint of insurance as an economic and social institution, sickness is much more important than death.

The mental and moral characteristics may be discussed under the head of the moral hazard. The moral hazard has been defined as that element in the risk due to circumstances or conditions of a personal and secret nature which are not disclosed in the application, although as regards family history and apparent health the applicant seems to be a desirable risk. The answers made to the questions in the application form a larger part of the foundation upon which the contract rests, and it is necessary in order to have a fair contract that the statements be complete, accurate, and true. The contract is in one aspect one-sided in that the insured

**Morbidity
and Mor-
tality.**

**The Moral
Hazard.**

can abandon it at any time, but the insurer cannot ; and even though the contract is obtained by misrepresentations, the burden of proof rests upon the company. It is generally true that a company in order to refuse payment must prove that the statements made are not only false, but also that they were willfully stated falsely.

The moral hazard exists in the following cases : —

(a) When the amount of insurance sought is larger than the income of the applicant will justify.

(b) When the beneficiary named has no insurable interest in the life insurance, although this is of decreasing importance.

(c) When the individual is involved in financial difficulties due to a failure in business or to a misappropriation of funds intrusted to his care.

(d) When the applicant is young and has not yet acquired fixed habits of living. He may become associated with undesirable classes and acquire dangerous habits.

(e) When any of the preceding or other causes may lead to temptations to suicide. Some companies protect themselves in part from this hazard by the suicide clause which provides that in case of suicide within a certain period, usually from one to three years after the issue of the policy, the face of the policy will not be paid. Only the reserve value of the premiums is paid to the beneficiary of the policy. The vital statistics of the United States show for the

registration districts, which include about one half the total population, that in 1908 the rate of suicides was 18.5 per 100,000 population. These figures, combined with those of 65 American cities which show for 1909 a rate of 20.6 suicides for 100,000 population, make this question of suicide an important one for insurance companies, especially when it is realized that those insured individuals who commit suicide often have large policies. Statistics show that the rate of suicide per 100,000 population in the 65 American cities has increased from 12.3 per cent in 1890 to 20.6 in 1909. The moral hazard is also present when insurance is granted to "cranks," not only because of the adverse effect of this class on mortality, but also because of the effect on the company in securing business among his acquaintances and the likelihood of lapses by this class, as well as the abnormal increase in expense of securing and keeping this type of an individual insured.

The methods by which insurance companies are attempted to be defrauded by dishonest applicants are too numerous and too generally well known to need description. Misstatements of age consciously and unconsciously made are very numerous. When unintentionally made, provisions are made in the policy contract for corrections without any loss to the policyholder. The tendency intentionally or unintentionally to misstate age is so strong that absolutely accurate age statistics for large groups cannot

be expected, even assuming that the best possible system of collecting the statistics is devised. In many cases, the ages of ancestors were never known or have been forgotten ; the causes of death of even the parents of the insured are often unknown.

One undoubted fact disclosed by age statistics is, that there is an excessive concentration of ages about years that are multiples of five and to a less degree in even numbered years. It is also evident that the tendency to understate age is stronger than to overstate age for all years except in extreme old age and to a less degree about the ages 18 and 21 when the age of majority for the two sexes is reached.

The preceding circumstances described are, then, the causes which produce substandard or under-average lives. The practical problem for the insurance company is, then, having these lives that are below the standard risk, how should they be treated, so that they will not adversely affect the experience of the company; otherwise the average age of the group will be affected, for the company assumes that it will be able to insure young and vigorous lives at the correct ages. Nor is the practical effect of insuring a substandard life the same as insuring a life of advanced years with a short expectation of life. An underaverage life may not only have a short expectation of life, but an abnormally short expect-

**The Method
of treating of
Substand-
ard Lives.**

tation, and if not properly rated so that an adequate premium is collected, it does not pay its due share into the insurance fund. The rate of mortality is, it must be recalled, a result chiefly of two factors,—the duration of membership, and the age at entry.

The effect of lapses, that is, voluntary withdrawing from the insurance group, will be discussed later; but it may be readily understood that if the younger lives lapse in unduly large numbers, the average age will be increased and hence the mortality rate will be increased. Nor can this be prevented by securing new members of the same age to take the place of the lapsed members. This would simply place the company in the same position that it was at the beginning. It must secure, not only new members to take the place of the lapsed ones, but also sufficient other new members to keep down the average age. It has been pointed out that in a mixed table of mortality those who insure young receive a benefit in mortality and consequently in their premiums and dividends from the fact that they have many years yet to live; and since the company is continually insuring new lives, the past young entrants will receive the benefits of selection from all the later insured group through many years. Those who do not insure until well advanced in years, do not live through a long series of years from which to derive the benefit of selection from the company which is continually insuring young

lives. They become members of a group and are burdened by the increasing mortality of those who have survived, the benefit of selection having largely disappeared. Concretely this practically means that the young person's prospect of life is increased by these continual additions of younger persons while the person who does not insure until late in life suffers a diminished expectation of life because he becomes a member of a class who have survived from younger ages. The time to take out insurance is, therefore, when the individual is young, because: (a) he is in his productive years; (b) because he probably has before him many years of obligation to his family; (c) because he will purchase his insurance relatively cheaper.

With these introductory remarks we may now consider the methods of rating up lives. It must not be understood, however, that all insurance companies have the same standard for a normal life. Not infrequently does an applicant who has been rejected by one company obtain insurance in another, and this soon after the rejection. In most companies inquiry is usually made in the application whether the applicant has been rejected by another company, and if he has been recently rejected, this fact will be considered presumptive evidence against granting the application. The variation in companies' standards is, however, confined within fairly well defined limits. It is due chiefly to the fact

that different medical examiners do not discover the same facts or to the experience of the company with particular classes of lives. By this is meant that there is no very great difference in the interpretation of facts, that is, of the actual physical condition of the applicant when known, but all examiners do not find the same symptoms nor diagnose them in the same manner when found.

The chief ways of making adjustment for an impaired or underaverage life are as follows:—

Methods of rating up Lives. (a) Charging the regular premium for a higher age.

(b) Writing the policy applied for at the regular premium, but with a proviso that if the insured die within a certain period such as five, or ten years, the face amount of the policy is reduced. This is the lien method.

(c) Charging a higher premium.

(d) Granting the insurance applied for, but on a policy different from that applied for; as, for example, issuing an endowment policy when the application was for an ordinary life policy.

(e) Issuing the policy on premiums based on impaired life tables.

The first method, that of charging the regular premium for a higher age, has been followed extensively by the European actuaries. It is simply to charge an applicant, for example, at age 40 the premium at age 45, thereby assuming that

his impaired physical condition practically makes his chance of death that of the average person of the latter age. This assumption, that impaired physical condition will cause the risk to increase at an increasing proportion, is not true in all cases. It is doubtless true that tendencies to certain diseases do increase or are constant with increased age, but there are other tendencies to disease which decrease with age. If, therefore, the tendencies either increase or decrease, there should be an adjustment of the premium. The method of thus treating substandard lives is so easy of application from the standpoint of practical administration and its success in the past has been so great, that it continues in great favor. Then, too, since from the standpoint of the company it protects the company, not only for the extra risk at the time, but also in the future, the company is able to insure applicants on plans of insurance such as the limited payment policies which otherwise it would not be able to do. This makes it satisfactory to many of the applicants, for in many cases no policy could be sold unless it was the same as some friend of the applicant had. Especially is this plan satisfactory in these days of popularity of the limited payment policies. Few individuals care to be restricted to buying an article which most of the people do not want. The addition to the age is usually under ten years and while the extra yearly amount in the early years is not great, if the individual lives

long, he pays a considerable extra sum. If the substandard life is at age 30 and is rated up to age 40, the excess premium is not great for several years at least, but if the substandard life is rated up from 50 to 60 and enjoys the average expectation of the normal individual at age 50, he pays a sum considerable in excess of what he otherwise would have paid. It will not be forgotten, however, that these individuals do not, as a class, enjoy the normal expectation of life of standard lives at their age.

Some policyholders naturally object to paying a higher price for the same policy which a friend has, for most persons are unwilling to admit that they are inferior to others. Lapses are not infrequent under this plan of rating up lives, although much depends upon the education of the people as to the particular method of treating substandard lives. There are other objections to the above method, but, as has been stated, it seems to have worked in Great Britain, where the people have been educated up to this method.

The second method of treating substandard lives, namely, that of placing a lien against the policy, has

become very popular in recent years with
The Lien. some American companies. This is the plan under which the substandard risk is accepted at its actual age for the premium at that age, but the full face of the policy is not paid in case of death within certain periods. The deduction from the face decreases as the insured survives beyond the

stated periods until the amount agreed to be paid by the company is the full face value of the policy. This plan was devised to meet the objections urged to the plan of charging a higher premium. It is also an aid in selling insurance, since the policy on the impaired life can often be sold to the person who feels that he is getting the same policy as his neighbor and paying the same price for it. Then, too, few individuals are willing to admit that they are substandard, not only as to longevity, but as to most characteristics, and thus the vanity of the applicant is satisfied. The applicant has confidence in his ability to live the average length of life, and if he does, his personal judgment has been vindicated without any extra premium, and if he dies, he has no judgment to be vindicated. The beneficiaries will probably be favorably disposed in their judgment of a contract from which they benefit. It must be recognized, however, that given a substandard life with this lien imposed upon it, which disappears completely, say after ten years, there is no assurance that the experience of the companies on this class of lives will necessarily be favorable on account of using this method of treatment. It may well happen that at the time the lien disappears the impairment of the life has so progressed that the individual is almost at the point of death; or the tendency to the disease, on account of which the lien was imposed, may have completely disappeared.

The liens do increase the desirability of the insurance, but in a manner not really appreciated by the insured at the time of purchasing the policy. In the actual practice of companies these liens are often not nearly equivalent to what the additional premium would be if the plan had been followed of rating up in years the substandard risk. The method of rating up lives by liens as has been stated has more to recommend it as a policy of practical administration than as one of scientific value. Other objections to the plan besides that of not rating the life up sufficiently and hence burdening the ordinary policyholders unduly with a more than proportionate contribution to the insurance fund are, that a policy with a lien cannot be offered as collateral for loans, and, lastly, if such a policyholder dies soon after taking out the policy, his family receives little benefit from his insurance.

A method of determining the amount of the lien is as follows: If an applicant, aged 30, shows the diminished prospect of the life of an average individual of a group at age 40, the difference between the premium at age 30 and 40 is multiplied by the number of years of expectation of life at the actual age. If death occurs the first year, the face of the policy is diminished by this amount. If the insured die the second year, the lien is decreased by one year's difference in premiums. At age 30, suppose an applicant has the diminished expectation of an average

person aged 40. The net premium in the American Experience Table with 3 per cent per \$1000 on the whole life plan for age 30 is \$18.28 and for age 40 is \$24.75, the difference being \$6.47. The expectation of life at age 30, the actual age, is 35.33 years. This expectation multiplied by \$6.47 would give a lien of \$224.59 for the first year. Theoretically the lien should be annually decreased, and even then it would not by this method be equivalent to insuring the life at age 40, but in practice the lien period is only for a fixed number of years. Another method is to have the number of years of loading imposed on any life arbitrarily fixed by the chief medical examiner.

The method of charging an extra premium has been sufficiently described in connection with the second method to indicate some of its objections.

The plan of charging a higher premium, especially if it is on the policy applied for, has little to recommend it, either from the standpoint of scientific accuracy or practical business operation of the company, unless it is based upon data collected from experience of impaired lives of the class to which the applicant belongs. If the higher premium is collected because the applicant is granted a higher premium policy, as, for example, an endowment policy, when the application was for an ordinary life, the applicant is likely to be dissatisfied. Difficulty may be encountered in

Charging a
Higher Pre-
mium.

delivering the policy, and even after delivery, lapses are likely to occur on account of dissatisfaction.

Moreover, the plan does not often give adequate protection to the company. If, for example, an applicant shows tendencies to tuberculosis and is granted a twenty-year endowment policy when he applied for an ordinary life, the assumption is that he shows the expectation of the average healthy life of the group at that age. But the life is admittedly substandard, and an abnormal death rate produces loss to the company, regardless of the plan of insurance. It is true that the company gains the difference in the reserve between the endowment and the whole life plan, but this amount in such cases is often insignificant.

The plan of insuring substandard lives on impaired life tables depends upon the applicability of the tables. If it is based on the Institute of Actuaries' Impaired Life Table, it may not have very close applicability to risks in America or Australia. It is difficult to devise any method entirely satisfactory for the reason that there is introduced a known abnormal life into a group of normal lives, the degree of abnormality being impossible to determine. It is the same difficulty which always arises when devising principles and rules to govern a homogenous group and then have introduced into it heterogeneous individuals. It is an attempt to make a rule for the exception.

A movement which has attracted considerable attention within the past few years, and one which affects the insurance of lives, is that of the **Conservation of human life.** The direct **Conservation of Life.** interest of the insurance companies in the subject is largely due to the efforts of Professor Irving Fisher of Yale University, who, being interested in it from purely humanitarian reasons, presented it to the insurance companies as a proper form of activity for purely business reasons in addition to the humanitarian element in it. The movement seeks to preserve, to broaden, and to extend life. It is well known that the advance in the medical and sanitary science has been very remarkable within the past several decades, and while the general public has received much benefit from the advances made in this science, yet it can hardly be claimed that these many new discoveries in hygiene are known and acted upon by the general public. What is needed is a vigorous campaign to educate the people in better ways of living.

The most marked effects of what has been done in the past reflect themselves in the lives of the two classes, the dependents and defectives. The children and the aged are better cared for, and hence more children grow to maturity. The defectives, such as the feeble-minded, the deaf, and the blind are also much better cared for than they formerly were. It must be admitted, however, that these classes are ob-

jectively and temporarily a burden on the productive classes. It may be possible, as some believe, to secure a class of old people who retain their mental vigor sufficiently to be of great value to the other members of society who do not have that wisdom which comes alone from age and experience. Least attention, however, has been given to the productive classes, the men and women of adult and middle life, who are the chief factors in determining the efficiency and worth of a civilization.

The movement has for its purpose the lengthening and broadening of life at all ages, and the effect on the insurance business is readily perceived. Insurance of lives is based to a large degree upon a mortality table or rate of deaths among a selected group of the population. Such a movement would, if successful, affect the death rate by lowering it. It would extend the productive years of the insured's life ; it would add to his efficiency while he is a producer ; it would create a finer sense of his obligation to take insurance. We have seen that a mortality table is drawn up on the assumption that it is subject to secular and temporary changes, and this movement would favorably affect both changes. By thus lowering the death rate, it would lower the greatest single cost of insurance, namely, the mortality cost. The movement if most successful would prevent untimely death, so that a smaller sum could be charged as a premium, but it would be as sufficient as the

larger sum now collected because it would secure greater additions from its compound interest accumulations. It would increase the expectation of life. Not only the average length of life would be affected, but also the breadth of life, for life is narrowed by morbidity. The length of life is usually only extended by controlling sickness, so that the prevention of sickness is the primary object of the science of hygiene. If it is true, as has been stated, that "one third of the deaths are preventable, that is, postponable" and that "it is within the power of man to rid himself of every parasitic disease," then the significance of any efforts which seek to extend and broaden life is very important.

The particular methods by which these results are proposed to be brought about are in general as follows: First, by affecting heredity. This may be done by creating such public opinion as will consider with disfavor the marriage of the physically and mentally unfit and the propagation of their kind. This result may be aided by legal restrictions on marriage. Second, by hygienic laws and the activities of the federal, state, and local governments, such, for example, as by quarantine regulations, pure food laws, pure water supplies, milk inspection, regulation of hours and conditions of labor, and installation of safety devices. Third, by semi-public hygienic activities. This includes medical research and instruction, which results in the discoveries

**Methods of
conserving
Life.**

of preventative medicine, of antiseptics, and especially making public property the knowledge thus acquired. It is only within the past few years that the medical profession, as such, has done much to educate the public in the proper care of the body. Semipublic institutions, such as hospitals, sanitariums, and asylums are doing much in this connection. The public schools are beginning to give more attention to the health of the pupil, and much good can be expected from this source. Fourth, by activities of private associations, such as societies to prevent the spread of contagious diseases, corporations seeking to care for the health of their employees, and life insurance companies. Fifth, by the practice of personal hygienic habits as a result of the activities of such associations previously mentioned and a better realization of their importance.

The conservation of life depends, not only upon the collective activities of all on a wide scale to prevent contagious and other unnecessary diseases, but also upon the care with which an individual looks after his daily health. That is to say, length of life is a personal and an impersonal matter. The individual must help himself and be helped by his fellows. He has a right to expect that his fellows will not unnecessarily expose him to a disease, but his fellows also have a right to demand that he will not so injure his vital powers by acquiring improper habits, and by lack of exercise, that he will become an easy prey to disease.

The question arises, to what extent is the insurance company justified, if at all, in taking part in this movement to conserve life? It calls for an expenditure of money and an insurance company has no money other than that which it receives from its policyholders.

**Relation of
Insurance
Companies
to Conserva-
tion of Life.**

It is a trustee of these funds whether it be a stock company with its self-chosen officials or a mutual company with its officers chosen by the many members of the company. It is urged that precedents are found for life insurance companies in the case of fire insurance companies which have spent large sums of money in various ways to reduce the fire hazard; also in the activities of liability and accident companies which spend considerable sums in inspection work and in devising protective devices of various kinds to which they call the attention of employers and their insured members. It is admitted by all that the insurance organizations are chiefly business and not philanthropic organizations. Is such an organization justified in making any expenditure which does not directly effect a saving for its members? It is scarcely likely that our courts will take any other point of view, and it would not seem reasonable that they should. A particular activity of an insurance company need not, however, for this reason benefit only the members of the insurance group. It may benefit the general public as well. But ought not the activity to benefit the insured lives in particular

and the general public only incidentally? Then, too, even assuming that the monetary benefit of activities to conserve life is clearly shown, there yet remains a very great practical objection. Would other companies coöperate in a general action for this purpose? If one or several companies should undertake this expenditure, it might unfavorably affect their expense ratio as compared with other companies, for assuming the justification and benefits of such a movement, the policyholders of other companies would equally benefit. The objections may then be summarized as follows:—

- (a) The legal objections.
- (b) The difficulty of securing proper coöperation.

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CHAPTER V

THE COMPANY

LIFE insurance companies may be classified with reference to the system under which they operate, with reference to the character of the internal control of the companies and with reference to the character of the policy's participation in the earnings. According to the first basis of classification we have old line, assessment, and fraternal companies. According to the second basis of classification we have the stock, mutual, and mixed companies and according to the third method of classification participating and nonparticipating companies.

Classifica-
tion of Com-
panies.

An old line company is one which sells policies for a premium fixed in amount during the length of the contract, and which accumulates a sinking fund or reserve to meet all claims upon the company. The word "old" has no reference whatever to the length of time that the company has been in business, since the youngest company organized under this plan is as "old" as any other in existence. Without anticipating the later discussion of the premium, it may readily be seen from what has been said of the risk that the

The Old
Line Legal
Reserve
Company.

necessity of reserve is the effect of not collecting an increasing premium for the increasing risk of death. More than the actual cost of carrying the individual risk is collected in the early years of the policy in order that less than the actual cost may be collected in the later years of the policy and thus the absolutely small charges of the earlier period and the excessively large ones of the later period are equated into a moderate charge for the whole period of the policy.

The assessment system of life insurance is that one under which theoretically the cost of the insurance

The Assessment Companies. is annually collected from the members by assessing on them the costs. In practice there has been so many modifications of

this theory that it is difficult to characterize the assessment plan; but the essential idea in this system is that no reserve is collected. In no plan of assessmentism is the policyholder guaranteed a level premium. In its earliest form an assessment or a collection was made from each member upon the death of a member. Later a definite sum was promised in each case of death, and each member was charged a certain sum at entry, but it was not at first based upon his age at entry. Age at entry was later taken into consideration, but it was soon perceived that the persisting old member was paying the same sum as the young entrant. Whatever of equity there had been at the beginning of the company soon disappeared, so that with the increasing

Notes:

death rates of the later years, the healthier old members tended to withdraw on account of the high cost. The sums collected were usually arbitrarily fixed without reference to mortality tables. It was an attractive plan to many because it seemed that men paid for their insurance as they got it. The present plan in some companies is to charge a sum at entry, based upon the age at entry and on a contract which provides that such additional assessment may be levied from time to time, as the needs of the company demand. This sum is frequently in excess of the current costs of the insurance during the early years of the organization and thus affords for a time a fund. In some cases a membership fee is collected, which also aids in establishing a fund.

However, in practically all the plans of pure assessment insurance the premiums collected are not sufficient premiums as required by the most reliable mortality table. The plans are too often devised to make it appear that the buyer of the assessment insurance is getting it cheaper than he would old line insurance. Insurance, like any other commodity, has its price, and no visionary plans can make it cheaper. Indeed, insurance costs are more definite than most costs, for they have a limited range. The stern fact of certain death and a fairly definite rate of dying confronts all those who sell the commodity—insurance. No such reductions or fluctuations in cost from year to year are present, as in the case of the

production of material goods on account of the use of improved appliances or other changes. Only the very gradual improvements in conditions of living, better care of the sick, more successful surgical operations, and more secure and better investments can cause permanent reductions in the cost of insurance. It is not a difficult matter to determine whether the premiums collected by assessment companies are sufficient, since mortality tables and interest calculations will disclose the fact.

It will be recalled from our past discussion that assessment companies are of two kinds, the pure business assessment company, and the fraternal company doing business on the assessment plan. Such companies have been in the past relatively free from the compulsory valuations required by state departments of old line companies, and it is for this reason alone that many of them have been able to continue in business. The fraternal assessment companies especially have been considered purely voluntary and private associations, and it has been difficult and in most cases impossible to bring them under the regulation of the state. It has been argued that they are not organized for profit and they have always had sufficient representation and political influence in the state legislatures to defeat regulative legislation. As a matter of political expediency the party in power has often hesitated to oppose them lest future votes might be lost. The evils of the purely business

assessment system have become so generally recognized, however, and the activity of the state along the line of protective legislation has so increased that uniform laws recommended by the association of state insurance commissioners seem likely to be adopted in many states. The fraternal assessment societies themselves have accepted the principle of the recommendations, and while the adoption of them will not completely rectify the errors of the past, yet it is a long forward step and in the end will result in placing assessment insurance on a scientific basis.

No well-wisher of insurance has any desire to force fraternal insurance companies out of business, for they have much to recommend them in addition **Fraternal Insurance.** to the lower cost at which they may transact insurance, as compared with the old line insurance company. It is unreasonable to suppose, however, that the people of the twentieth century with their increasing care for system in organization of business will much longer permit such a blot in the insurance business as the old unscientific and practically dishonest assessment company. So far as the plans of fraternal companies are the same as the unscientific assessment plan, so far are they unable to meet their obligations and no specious appeal to the sentiment of fraternity should be permitted to conceal the injustice of the plan. What more elementary requirement is there about fraternity than that

brothers should meet their obligations? What more fundamental characteristic of real fraternity should be observed, than honesty in making a contract and fidelity in carrying it out? If fraternity is not to be a farce, those who are responsible for the millions of fraternal assessment insurance now in force must make adequate provision for the meeting of the obligations now unprovided for. Much of the fraternal insurance of the assessment character now held has not been paid for. In many cases less than one third is paid for, that is to say, for every \$1000 of insurance in force \$600 of it is a worthless promise to pay. The National Fraternal Congress table of Mortality is much lower than the American table and certainly no rates lower than those called for by the former table should be permitted. The death rates in some of the fraternal organizations are now in excess of the rates of the Fraternal Table and even in excess of the rates of the American Mortality Table. It is not too much to expect that other states will follow the lead of Iowa and prohibit the organization of any insurance society on the old assessment plan or even permit the organization of any new company on any other plan than one which will absolutely guarantee the collection of a premium which with safe and wise investments will meet all future demands. It is a kind of dishonesty, which, although often originating in laudable motives, has been all too prevalent in the past.

There is, then, but one system of life insurance. There can be but one system from the standpoint of premium collections, and that is one under which such a premium will be collected as the rate of mortality and rate of interest show are sufficient. All these other so-called systems of insurance should be classed with the gambling contracts of the early developmental stage of insurance. The only difference is that in assessment insurance there was not always an intent to deceive, while in the gambling contracts this intent was either always consciously present, or it was a purchase and sale of mere chance. However, if in last analysis, injustice results, it makes little difference to the bearer of it whether the original purpose was good or bad. The penalty of ignorance, both in written and unwritten law, is no less severe than that of knavery, and it is the concern of society to protect itself from its well meaning but ignorant members no less than from its dishonest members. As has been well said, "assessmentism has merited a sentence of legal death and fraternalism a suspended sentence."

We have now to consider the second classification of companies, viz. stock, mutual, and mixed companies. The stock company is one organized by private individuals who have subscribed capital stock sufficient to convince the state that the companies will be able to meet their obligations. It is owned and controlled by the stock

**Only One
True System
of Insurance.**

**The Stock
Plan.**

contributors, who select the officials. All the profits in the pure stock companies go to the stockholders, and all policies are issued on the non-participating plan. If a company organized as a stock company issue policies which share in the surplus earnings of the company and also permits policyholders to have some part in the management of the company, then such a company is properly called a mixed company.

It is claimed for this kind of a company that the self-interest of the stockholders will guarantee fidelity to their trusteeship in caring for the policyholders funds and that competition of other stock and mutual companies will guarantee a fair cost of insurance to the policyholder. It is also argued that the stockholders have every interest in selecting the most efficient officials and this they are free to do without any interference from the uninformed policyholders who theoretically can dominate the policy of strictly mutual companies. The stock company was the first to develop both in England and America because the capital was a partial guarantee of the contracts in the early days of insurance when the mortality tables were not known to be sufficiently accurate to assure solvency from the annual contributions by the members of mutual companies. It is assumed under the stock plan that a small addition is made to the actual net premium, and this becomes

**Advantages
of the Stock
Plan.**

the fixed premium to the policyholder. Any losses are borne by the stockholders and any profits go to them as payment for the risk incurred. The element of risk, however, so far as it is one of mortality rate is not great, for such a mass of experience is now available that there is little excuse for any insurance organization not collecting sufficient premiums for the actual mortality to be experienced.

In a strictly mutual company there is no capital stock and hence no stockholders. The company is the policyholders, who select their officials and control the management of the company. The older mutual companies have no capital stock and the newer ones in most cases only a nominal capital. It is often provided that those who advance the capital necessary to start the company shall receive a certain interest, say 10 per cent, for the risk up to the time at which the capital may be retired when a reserve and possibly a surplus has been accumulated. The policyholders in a mutual company pay a premium in excess of the actual mortality premium demanded and also in excess of the premium for the same kind of a policy in a strictly stock company, but whatever of this premium is not necessary, as the future experience of the company shows, is returned to them. The return of this overcharge is called a dividend and hence the policy in a strictly mutual company is said to be a participating policy.

It is claimed for this form of company that it has no dividends to pay the stockholders and can manage its affairs in such a manner as the policyholders decide is proper. Some mutual companies, however, issue policies at such a rate that the contract does not entitle the holder to share in the dividends, that is to say, his future overcharges are supposed to be discounted in the form of a lower premium. If a surplus is accumulated in addition to the reserve, this is also the property of the policyholders. This surplus is accumulated for emergencies, that is, for higher mortality claims or to enable the company to give its policyholders the same general dividends or returns that it has been making in the past, or to cover any depreciation in assets.

Advantage of the Mutual Plan. In the mixed plan there are stockholders who receive dividends on the capital which they have advanced. A certain rate of interest is fixed to be received by the stockholders and all surplus earnings are then distributed to the policyholders. In some cases no limitation is fixed as to the amount which the stockholders are entitled to receive and they may take what they please, although they are compelled by the participating policy contracts to make some distribution to such policyholders. Some states require the retirement of the stock and fix the maximum interest to be paid, while others have no special requirement. Most of the companies

The Mixed Plan.

now organized have capital stock because most states require a guarantee capital for the organization of a company.

We have thus stated the theoretical basis of the different kinds of companies, but in actual practice there are some points of difference. At first the stock company was the rule, but soon the mutual company came in vogue. The large dividends paid by many of the mutual companies attracted the attention of certain investors inclined to speculate, and stock companies were organized in larger numbers. Later the mixed company became the rule.

It must be pointed out that in actual practice the difference between stock and mutual companies is more apparent than real. The ordinary reader could not determine from the rate **Comparison of Kinds of Companies.** books of two such companies which was a mutual and which was a stock company. It is true that there is a general tendency for stock companies to sell only nonparticipating insurance. The recent investigations of the insurance business by New York and other states resulted in laws requiring either that a company should confine itself to writing participating or nonparticipating policies or should keep separate accounts of the two classes of business. This was done in the belief — whether or not justified by the facts — that the company's earnings on participating policies were used to make lower rates for the nonparticipating policies. It

does not necessarily follow because there are stockholders who receive dividends that the net cost of the same kind of a policy to the insured in a stock company will for this reason be higher than the net cost at the end of a contract in a mutual company. The net cost of an insurance policy to the holder is a function of so many variables that an excess at one point in the cost may be balanced by a saving at another point.

Nor does the distinction based on the fact that in one case the company is controlled by the stockholders and in the other case by the policyholders amount to very much in real practice. The management of a mutual as well as a stock company is controlled by very few men. We have seen that a stock company sometimes permits its policyholders to vote, but in neither this case nor in the case of a mutual company does the average policyholder ordinarily exercise this right. Few of the policyholders could attend in person the meeting, and even if they did, they are not ordinarily well enough informed upon the subject to vote intelligently. In most companies the proxy system is followed. Under this system the policyholder, either at the time of purchasing a policy or later upon invitation from the officials of the company, when a notice of a meeting of the officials is sent, gives his proxy or right of voting to the president of the company. This system permits the company to be

**The Proxy
Method of
controlling
Companies.**

directed by the board of directors and its chosen executive officials, who doubtless are in position to pass most intelligently on the questions which come up for decision.

It is urged as an advantage of mutual companies that the policyholder has an opportunity in times of crises in the company's affairs to express his will and thus correct evils. This is a power more theoretical than actual, for the

**The Control
of Mutual
Companies.**

history of insurance affords no clear-cut case when this has accomplished any great reform. The competition of other companies, both mutual and stock, and the knowledge of this final power resting in policyholders, together with the supervision by the state, are the really protective forces for the policyholder in securing honest and efficient administration of the company. It was thought by some that the mutual company would afford a means of educating the people to an understanding and appreciation of insurance. Some efforts have been made to organize the policyholders into local associations which could make their will known to the home office, but such attempts have not been successful. The average policyholder knows little about even the policy he owns and still less about the insurance business and with the protection afforded by the state there is no immediate prospect that he is going to make much effort to inform himself on the subject. Efforts must be made by the company to educate him to a more

intelligent appreciation of insurance, supplemented by the work of educational institutions. The apathy of the average policyholder is surprising, even when it can be shown that the cost of his insurance is to be affected, as in the case of adverse legislation. He is too busy, as he thinks, in his business and professional work, to give attention to insurance. There is, then, in the actual conduct of the business little difference between a stock and a mutual company so far as the question is concerned as to what individuals shall direct the affairs of the company. In either kind of a company it is a few men and not the rank and file of policyholders.

The third classification — that of participating and nonparticipating companies — is not a fundamental distinction. It is classification of kinds of **Participating and Non-participating Companies.** business or policies rather than companies, for a company which ordinarily writes only policies which share in the earnings — that is, receives dividends — may in some case refuse for special reasons to permit an individual to have such a policy, or at least one upon which the dividends are annually distributed. Indeed, it was a very common practice of both stock and mutual companies to write both participating and nonparticipating policies previous to the investigations of the insurance business in 1905. As a result of the disclosures in this investigation, companies were required by some states to keep separate the accounts of the two kinds of busi-

ness. This required such a vast amount of work and consequent expense, that most of the companies now confine themselves to writing either participating or nonparticipating policies, and for this reason the above classification is given.

We may diverge at this point in the discussion to explain how the action of any one important state may force a company to adopt in conformity to such action a uniform practice in all the states in which it writes insurance. Suppose Ohio would require that a certain provision be printed in every life insurance contract issued or delivered to a citizen of that state. This means that all life insurance companies doing business in Ohio must have printed one set of policies for Ohio and another set for other states, or it must include this provision in all its policies. If the requirement is one which, if not included in policies in other states, means a marked saving, the company may decide to pay the extra printing bill. If it is an important reform, it is likely to be adopted by other states, and the company will very probably incorporate it voluntarily in its policies. However, in the actual practice of insurance the policy requirements of less than a dozen states practically decide the terms of the printed contract. Competition of other companies from various states is also a powerful force in bringing about general uniformity in the terms of the printed policy.

How the Requirements of one State may control Policies for all States.

The organization of a life insurance company, whether on the stock, mutual, or mixed plan, requires several stages. In addition to the general laws governing the organization of all corporations, practically all the states have special laws which govern the organization of life insurance companies. In many states a minimum number of persons who may organize such a company is fixed by the statute. These several persons agree to advance certain sums of money for the initial expenses, for even if it is a purely mutual company — a kind now seldom organized — a certain amount of capital is required for the initial expenses.

The interested persons hold a meeting to decide the kind of a company which is to be organized and the amount of capital stock which is to be issued. The officials of the company are also chosen. Most of the states require a certain minimum of capital stock for the ordinary mutual company, and in many cases the capital stock must be paid up. This minimum capital is required as a deposit fund, held by the state in invested securities, the income of which goes to the company. This deposit fund is supposed to give greater security for the policyholders, but if the company is operating on scientific plans and its transactions are carefully supervised by the state, the necessity for such a deposit is not evident.

After the above requirements have been met, the interested persons apply to a state official, usually

the secretary of state, for articles of incorporation, which are usually called a charter. The state official makes an examination of the terms upon which the company proposes to organize **Securing the Charter.**

and do business in order to discover whether the proposed plans violate the state constitution or state laws. Certain matters may be referred to the chief law officer of the state, the attorney-general, and certain other matters, having to do with the financial security to the insurance commissioner. If, then, the state official, empowered to grant articles of incorporation to insurance companies, is satisfied with the terms proposed, a charter is issued. The charter does not, however, grant a right to do an insurance business. It merely grants the right to proceed with the organization of the company, and it frequently happens that several years elapse after a charter is granted before a company begins writing business. It also happens in some cases that the company is not able to effect an organization and never applies for a license to write policies. The next important step after securing a charter is to dispose of the stock.

A well marked evil has developed in connection with the organization of the numerous new companies since 1905. This consists in the very large commission given to agents by proposers of a new company for selling the stock of the new company. Not infrequently are these stock salesmen permitted as high as 20 per cent commission, and when it happens

that the officials of the new company are also the stock salesmen, the evil is particularly glaring. Sometimes shares of stock are either given or sold at a large discount to influential men in a community in order to capitalize their name, and thus sell stock in their community. This last evil is doubtless difficult to correct, but the former can be remedied by limiting the commission permitted to sellers of the stock of new companies. The expenses of such sales do vary considerably in different sections of the country, but this variation can be taken into consideration by each legislature in establishing the limit. There should be no place in the insurance business for the professional promoter. In order to control the organization of companies more carefully, some states have given to the insurance commissioner control of the activities of companies immediately after a charter is issued, that is, during the period of formation. After the stock has been sold and other details of the organization have been worked out, the company applies to the insurance commissioner for a license to do business. The insurance commissioner then makes an examination of the company's condition, and its transactions since it received its articles of incorporation, and the plans under which it proposes to do business, the policies it proposes to issue, and other matters to see that the laws governing the operation of insurance companies are not violated. Particular attention is given to the finan-

cial condition of the company. If he is satisfied on all these points, a license is issued to the company, and this marks the time of the real beginning of doing an insurance business.

It must be evident that the expenses incident to the establishing of a new company in the insurance business are very considerable. In addition to the usual expenses of establishing an ordinary business, such as rent, office equipment, and salary of higher officials, the very difficult problem of securing a working force,—that is, agents to sell the policies—must be solved. There are not as in most kinds of business a number of workers waiting for positions. The insurance agent should be a skilled workman. It usually requires a certain amount of training to be able to sell insurance. The new company must, therefore, either induce agents to leave other companies or train the inexperienced man. The successful agent of the established company is ordinarily not anxious to connect himself with a new company for, all other things being equal, it is easier to sell insurance for an established company than for a new company. Consequently the new company often is compelled to make an offer of a higher commission in order to induce him to become their agent. But it is entirely too expensive to thus purchase all its agency force; so the new company endeavors to secure a certain number of trained men, who then build up an agency

Expenses of
Organiza-
tion.

force by training new men. There is in the insurance business, as in all businesses, a certain number of "floating" workmen, but they are not a class upon which a company can depend for substantial results.

The charter and the license granted to the company in a particular state do not confer the right to do business in any other state. It must be admitted to do business by the authorities of each state in which it seeks to do business. However, by the operation of state comity the entrance into other states is usually a simple matter. Some companies do business in all the states; some confine themselves to certain sections of the country. The new company gradually organizes its business in other states, usually in the adjoining states first, but entering as quickly as possible the states of dense population.

The process of organizing a fraternal insurance company is somewhat different from that of the ordinary stock or mutual company. It has been stated that efforts have been made for several years to bring this class of companies under more strict control as to their organization and operation. The officials of such companies and the national associations of insurance commissioners have agreed upon a bill which has been enacted into law in some states and of which enactment is pending in other states.

The chief provisions of this bill are as follows :

(a) a definition is given of fraternal benefit societies ; (b) the reserve for extended and paid up protection and withdrawal equities must be accumulated and maintained under a table of mortality not lower than the American Experience Table on a 4 per cent basis ; (c) membership is limited to persons between 16 and 60 years of age who have been examined by a legally qualified physician ; (d) no society can be incorporated in or admitted to the state in the future which does not provide for stated periodical contributions sufficient to provide for meeting the mortuary obligations when valued upon the basis of the National Fraternal Congress of Mortality or any higher standard with interest assumption not more than 4 per cent ; (e) the investments of funds must be in such securities as are permitted for the investment of the assets of regular life insurance companies ; (f) there must be at least seven incorporators of the proposed company ; (g) the organization must be completed within a year during which time a bond is held by the insurance commissioner and a certain minimum amount of insurance must be written ; (h) annual reports must be made to the state commissioner of insurance, and beginning with 1914 a report of the valuation of policies must be sent to each beneficiary ; (i) if the valuation of the certificates on December 31, 1917, shall show that the pres-

Standard
Provisions
governing
Organization
of Fraternal
Insurance
Societies.

ent value of future net contributions together with the admitted assets is less than 90 per cent of the present value of the promised benefits, the deficit shall be reduced at a certain rate at each succeeding triennial valuation until it is removed and in case of failure, proceedings for dissolution of the organization shall be instituted. By the preceding provisions and others, fraternal insurance is brought under more careful control with a view of assuring that all the obligations will be met. Exemptions are made in the case of certain societies.

The state of Massachusetts has recently passed a law which permits the savings banks to establish departments for selling industrial insurance. No agency force is employed and the success of the plan is yet to be shown.

The internal operation of the company after once organized is much the same as that of any other corporation which has to do with collecting investing, and disbursing sums of money. The board of directors has complete general supervision of the company. It chooses the president and the other principal officers. The board divides itself into various standing committees, which usually act for the board as a whole. The number of committees varies in different companies, but there is usually a committee on death claims, one on agencies, one on accounts, one on finance, and an executive committee. These committees meet as

**The Internal
Organization
and Opera-
tion of a
Company.**

often as is necessary. They listen to reports from the heads of the departments over which they have supervision. At stated intervals the whole board meets to ratify the action of committees, to discuss general policies of management and other matters which pertain to the business of the company. The board of directors delegate very large powers of an executive nature to the president. At most it lays down policies or adopts them upon the suggestion of the president and then intrusts the details of execution to the principal officers. The president of an insurance company is, therefore, The President. an important official. He needs to be well informed on financial matters, and at least well enough informed in the work of the other departments to make intelligent recommendations to them and interpret the results secured. He is a counselor for his board of directors, a director for the subordinate officials, and a protector for the policyholders.

There may be several vice presidents, each of whom may be at the head of a department, the work of which is to be described later. The treasurer is responsible for the prompt collection and safe-keeping of all funds and the oversight of all investments. Other Officers. The investments are not made by the treasurer, but by the committee of the board of directors or the president acting for or with the board or with the committee. The secretary has supervision and charge of the records of the company

and the correspondence. The actuary has charge of all the subjects which pertain to premiums. He prepares premium tables, tables of loans and surrender values, calculates the reserves and dividends and the mortality experience of the company. Many special calculations are annually required in a large company as to premiums, results secured on past policies, and the preparation of gain and loss exhibits. All this work is done by the actuary. He is the one indispensable official to guarantee that the business is scientifically conducted. His recommendations may not always be followed, but if they were, it would go far towards guaranteeing safe insurance. The medical director has charge of the force of medical examiners. He selects the physicians to act as the company's examiners and is the final authority on the desirability of a risk from a physical standpoint. All examinations made by the local examiner are submitted for his final approval. He advises the officers and board of directors on all matters pertaining to his department.

The work of an insurance company may be divided into the following departments : executive, medical, actuarial, legal, financial, and agency. Additional departments, such as accounting, statistical, and investment may be found.

The work of some of these departments has previously been described sufficiently, but others demand a more detailed consideration.

The legal department concerns itself with the conduct of cases before the courts, arising out of contested claims, foreclosures of mortgages, clearing titles to property, and a wide variety of other subjects. It must also see that bonds are properly drawn up, that the security supporting them is good, that the policies state precisely what is intended, and that notes are properly drawn. It keeps the officials informed as to the character of old and new laws enacted by the legislatures affecting insurance.

The statistical department not only tabulates the varied experience of the company on insured lives and on its investments, but it also interprets these statistics in order that the future conduct of the business may be improved from the experience of the past. The deductions made are of especial value to the executive and actuarial departments.

The agency department is one of the most important of all departments, for it is the one which secures the business for the company. At the head of this department is a superintendent of agents, who is sometimes a vice president of the company.

Several plans of organizing the agency force are in vogue : (a) the general agency system ; (b) the direct agency system ; (c) the cashier and branch office system ; (d) the brokerage system. It was the early practice of insurance companies in England and America to pay certain commissions to any one who induced a person to insure

The Agency Force.

with the company. A class of persons was thus encouraged to enter the business, who considered the interests neither of the company nor of the policyholder, and very grave evils developed. No dignity was given to the work, and insurance suffered undeserved criticism on account of the irresponsible and dishonest persons who sold it. Some improvement was made when the companies employed persons, either on a fixed or contingent salary, who should appoint agents to solicit insurance on a commission, or a salary ; but this did not solve the problem because the local agent was not definitely controlled by the company and the general agent was often not adequately rewarded.

The general agency system is established by giving exclusive control of a territory to a general agent.

The General Agency System. He organizes the business of soliciting insurance in his field, by appointing agents for whose conduct he is responsible.

He is often required to produce a certain amount of business. He receives a commission on all business written in the territory as well as a renewal commission on the business, that is, a certain per cent of each premium as it is paid to the company. There is a very decided tendency among companies, however, to permit a general agent to write business in any territory, and where exclusive territory is granted, it is usually of a small area. The objection to the general agency system as it developed in the past

was that the general agent with the exclusive territory was often tempted not to develop the business after he had secured an income from past business. If he is required to make each year a percentage increase in business, the results secured may be quite as good as under any other system. The direct agency system is that in which the agents are appointed directly from the home office, are directed from it and report to it. The merit of this system is in the centralization of authority at the Home Office. In this system exclusive territory may or may not be assigned.

The brokerage system, which has come to be of less importance in life insurance, is also one of direct contracts and no exclusive territory and no renewal commissions. The cashier and branch office system is the one in which branch offices are established at different points in charge of a manager and a cashier. The manager secures local agents upon terms over which he usually has some discretion, but all contracts with local agents must usually be approved by the Home Office. The manager is allowed a certain sum for office expenses. All payments on policies in the territory of the branch office are made through it or if sent to the Home Office by the policyholder, are credited to the account of the particular branch office.

A description has been given of the methods by which a company is internally controlled, and the

subject of external control, that is, control by the state will be discussed in detail in a subsequent chapter.

At this point it may be stated that a company is controlled in three general ways: (a) by the enactment of general laws governing the organization of insurance companies; (b) by enacting from time to time laws in reference to their operation which have to do with the terms of the contract, the investment of funds, the expense for business, standards of solvency, taxation, and a wide variety of subjects; (c) by requiring that each company make report of its business to a state official, usually a state commissioner of insurance. The report includes sworn statements of business in force, new business written, reserve accumulations, disbursements and receipts, liabilities and assets, and much other information. The object of such a report is to assure the official, and through him the people, that the company is a solvent one.

A brief discussion may be made in conclusion about the business of selling insurance. We have seen that the old type of the agent was simply interested in bringing a prospective purchaser to the company, which then insured or rejected him. The agent was a solicitor. He accepted the contract as made by the company and did not concern himself with its terms. He knew little about its terms and cared less. He was sim-

**Legislative
Control.**

**Selling In-
surance.**

ply interested in getting his commission. A new type of agent has largely displaced this earlier type. He is not only familiar with the terms of the contract, but very frequently knows considerable about the insurance business. He also feels a personal responsibility to the company to produce for it desirable business and to the policyholder to sell him honestly a policy suited to his economic and social position. He takes a legitimate pride in his work, for he comes to appreciate its immense social value. He is continually appealing and urging men to do their known duty. His work is, speaking generally, no longer to convince men of the desirability or excellence of insurance, but rather to persuade them to purchase what they need. However, the most successful agent is not necessarily that one who writes the greatest number of policies, but rather that one who sells to the greatest number of individuals policies which are suited to them. Doubtless many agents have not yet acted up to their responsibility in this particular, but no young man who expects to build up an enduring insurance business can adopt a safer plan than that of determining that he will be completely sincere in his honest efforts to place the kind and amount of insurance where it is needed. The characteristics required to become a successful salesman of insurance are not entirely peculiar to this business. He must above all be energetic. He should have the qualities of originality and leadership to a con-

siderable degree. He should be a good judge of human nature and be able to clearly express his thoughts in a concise and forceful manner. He needs to have sufficient analytical power to determine the significance of the terms of his company's contracts and those of his competitors. He should thoroughly believe in the business and the excellence of his company. As the knowledge of insurance and its practices become more widely diffused, a higher and higher type of agent will be necessary, for there is no immediate prospect that men will voluntarily purchase insurance without the activity of the agent. For the young man who has these qualities, the insurance business offers a most excellent present and future field, not only from the standpoint of remuneration, but also because it is a business which brings satisfaction to the conscience of the individual. In many cases in old age is a man led to consider the character of his lifework and few find greater satisfaction than the man who has spent an honest life in the insurance field. His work has been constructively social. He, like the teacher and preacher, has labored for the distinctive betterment of mankind, and his reward is quite as much in the intangible personal and social approbation as in the tangible monetary reward for his daily work.

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CHAPTER VI

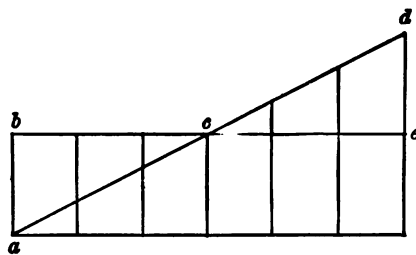
THE PREMIUM

THE premium is the sum that is paid by the insured to the insurer for the indemnity or benefits which the latter sells. The premium may be a single payment, a series of annual payments or payments made weekly, monthly, quarterly, or semiannually. In case they are paid in periods less than a year an addition to the fractional part of the annual premium is made because all premiums, so far as they are determined by the mortality table, are based on the annual death rate and not on the weekly or semiannual death rate. The company loses one half a year's interest on the premium, which is paid semiannually.

Several kinds of premiums must be distinguished. The net or pure premium is the sum required to provide for death losses. The gross premium is the net premium plus the additions made to it for the purpose of expenses and contingencies. The natural premium is a term sometimes used to mean the annually increasing premium which is necessary to meet the annually increasing chance of death. In this sense it means that if the young man,

aged 25, prefers to pay for his insurance year by year as he obtains the protection, he must pay an annually increasing sum. In this sense it is contrasted with the level premium which is the sum that neither increases nor decreases during the length of the contract, but which by its periodic payments secures the benefit guaranteed. The level premiums are the mathematical equivalent of the natural premiums.

This can be expressed by the following figure in which the triangle represents the natural premium and the rectangle the level premium.



The perpendicular lines represent the annual payments under each premium plan. The area of the rectangle equals the area of the triangle, that is, the natural premiums are equivalent to the level premiums. The excess payments of the earlier years, namely, the triangle abc , balances the deficient payments of the later years, namely, the triangle cde . That is to say, the payments, represented by the triangle abc , constitute a reserve or a sinking fund thus accumulated out of premium payments for the purpose of meeting obligations as they fall due.

It will be recalled that the level premium is the basis of practical insurance, for while one premium is

as scientific as the other, the practical difficulties of conducting insurance on the natural premium plan are insurmountable. It is for this reason that so many of the assessment societies have failed. As the members of the pure assessment society became older, the necessarily higher premiums became so burdensome to the surviving members that they often gave up their insurance and new members are loath to enter a society when the rates are increasing. The theoretical plan, then, of paying for your insurance as you get it, has never been successful in practice. Insurance must be paid for during the productive years of life and not become an increasing burden with increasing age with its accompanying unproductive years.

The net level premium is simply the level premium without its additions for expense and contingencies. With these additions it is called a gross level premium.

We are now to explain how the ordinary premiums of the chief policies are calculated. To do this we make the following calculations : —

(a) Calculate the net single premium, which is the amount paid in advance in a single sum that will purchase a certain sum of insurance, payable at death.

**Methods of
calculating
the Different
Premiums.**

(b) Calculate a life annuity due.

(c) Calculate the number of annual premiums which will be equivalent to this single premium.

(d) Calculate a temporary annuity due in order to determine the premium for a limited payment life policy.

(e) Calculate the single premium for a pure endowment contract and combine it with the single premium for term insurance to determine the single premium of an ordinary endowment policy. This divided by the temporary annuity will give the annual net endowment premium.

Any other premium on the majority of the policies now written will be some form of these premiums.

To calculate the net single premium: Assume that there are 1000 men who desire to buy the right to receive \$1000 each from an insurance company, and assume further that they wish to pay for this right in one payment. Let us suppose that the limit of life for the group of 1000 purchasers at 50 years of age is 53 years and that 200 die the first year, 300 the second, and 500 the third. Since the company is to pay \$1000 to each, the total sum to be paid out is \$1,000,000, but since only a part of this, \$200,000, will be paid out the first year, another part, \$300,000, the second year, and still another part, \$500,000, the third year, the company will not need to collect the total sum \$1,000,000 at the beginning, because only a part is to be demanded each year and the sum paid in will increase by its interest earnings. Assume that 3 per cent interest can be earned. Now, since \$200,000 is to be demanded at the close of the year,

the question is, What sum bearing 3 per cent interest for one year will amount to \$200,000? The present value of \$1 for one year at 3 per cent is .970874 cents, and therefore the present value of the \$200,000 is .970874 times the sum, or \$194,174.80. Likewise the present value of \$300,000, which is to be demanded only at the close of the second year and therefore has had two years to accumulate interest, is \$282,778.80; that is, it is .942596, the present value of \$1 to be paid in two years, times 300,000. In the same manner the present value of the \$500,000, which is to be demanded the third year, is found to be \$457,571. The total amount of the present value of these three sums is \$834,524.60, and since there are 1000 persons who are to be insured, each should pay \$834.5246 in order that the company may be able to pay to each \$1000 insurance.

It is assumed that the payments by the company are to be made at the close of the first, second, and third years, when all of the persons will have died. This single payment of \$834.52 is, then, the net single premium necessary to secure \$1000 insurance under the above assumptions. Since we have shown in a simple way how a single net premium might be calculated under an assumed mortality table, that is, one in which each of 1000 persons aged 50 would die by age 53, we may now apply the same method of calculation to an actual mortality table and determine the net single premium, necessary to be col-

lected in order that the company can pay \$1000 upon the death of the insured.

The problem is to calculate the net single premium for a whole life policy of \$1000 for a person at age 50. By referring to the American Mortality Table, it will be found that of 100,000 persons aged 10 only 69,804 are living at age 50. It is also observed that 962 will die within a year and therefore the company will be compelled to pay out \$962,000. But the present value

**The Net
Single Pre-
mium.**

of this sum or the amount necessary to be collected at the beginning of the year is \$933,981, which with its interest accumulations at 3 per cent amounts to the \$962,000. Likewise the company will not need to collect the \$1,001,000 for the 1001 who die in their fifty-first year, but only the present value of this sum for two years at 3 per cent, which is \$943,539. So, too, it will not need to collect in the beginning the \$3000 which will be demanded according to the mortality table by the death of the last three survivors in their ninety-fifth year, but only the present value of \$3000 for 46 years, which is \$770. Likewise the present value of the sums to be demanded each year is calculated, and the amount of all these present values is \$38,756,240. This is the sum necessary to be collected at the beginning of the first year, viz. the fiftieth, in order that the company can pay to each of the 69,804 the \$1000 when they die. Since each is to have the same kind

AMERICAN EXPERIENCE TABLE OF MORTALITY			COMPUTATION OF NET SINGLE PREMIUM AT AGE 50.			
1	2	3	4	5	6	7
Age at the beginning of the year.	Number living at the beginning of each year.	Number dying during the year.	Amount to be paid out for death claims at the end of each year indicated in column 5.		Present worth of \$1 at 3 per cent compound discount payable at time stated in column 5. This decimal, multiplied by the number of dollars set out in column 4 for corresponding year, will give present worth as set out in column 6.	Present worth of amounts set out in col. 4; or the amounts to be collected at the beginning and invested at 3 per cent compound interest to produce sums necessary to pay death claims set out in col. 4 as they fall due at end of each year.
50	69,804	962	\$ 962,000	End 1st year	\$.970874	983,981
51	63,842	1,001	1,001,000	" 2d "	.942596	943,589
52	67,841	1,044	1,044,000	" 3d "	.915142	955,409
53	66,797	1,091	1,091,000	" 4th "	.888487	969,339
54	65,706	1,143	1,143,000	" 5th "	.862609	985,962
55	64,563	1,199	1,199,000	" 6th "	.837484	1,004,143
56	63,364	1,260	1,260,000	" 7th "	.813092	1,024,495
57	62,104	1,325	1,325,000	" 8th "	.789409	1,045,967
58	60,779	1,394	1,394,000	" 9th "	.766417	1,068,386
59	59,385	1,463	1,463,000	" 10th "	.744094	1,092,330
60	57,917	1,546	1,546,000	" 11th "	.722421	1,116,863
61	56,371	1,623	1,623,000	" 12th "	.701380	1,141,842
62	54,743	1,718	1,718,000	" 13th "	.680951	1,166,471
63	53,030	1,800	1,800,000	" 14th "	.661113	1,190,012
64	51,230	1,889	1,889,000	" 15th "	.641862	1,212,477
65	49,341	1,980	1,980,000	" 16th "	.623167	1,233,869
66	47,361	2,070	2,070,000	" 17th "	.605016	1,252,883
67	45,291	2,153	2,153,000	" 18th "	.587395	1,267,593
68	43,133	2,243	2,243,000	" 19th "	.570286	1,279,151
69	40,990	2,321	2,321,000	" 20th "	.553676	1,285,083
70	38,869	2,391	2,391,000	" 21st "	.537549	1,285,281
71	36,178	2,443	2,443,000	" 22d "	.521898	1,277,593
72	33,780	2,487	2,487,000	" 23d "	.506692	1,260,145
73	31,243	2,505	2,505,000	" 24th "	.491934	1,232,295
74	28,738	2,501	2,501,000	" 25th "	.477606	1,194,493
75	26,237	2,476	2,476,000	" 26th "	.463696	1,148,108
76	23,761	2,431	2,431,000	" 27th "	.450189	1,094,409
77	21,330	2,369	2,369,000	" 28th "	.437077	1,035,436
78	18,961	2,291	2,291,000	" 29th "	.424346	972,176
79	16,070	2,196	2,196,000	" 30th "	.411987	904,723
80	14,474	2,091	2,091,000	" 31st "	.399987	836,372
81	12,838	1,964	1,964,000	" 32d "	.388337	762,693
82	10,419	1,816	1,816,000	" 33d "	.377026	694,679
83	8,603	1,648	1,648,000	" 34th "	.366045	608,242
84	6,955	1,470	1,470,000	" 35th "	.355383	522,413
85	5,435	1,292	1,292,000	" 36th "	.345082	445,781
86	4,193	1,114	1,114,000	" 37th "	.335183	373,171
87	3,079	933	933,000	" 38th "	.325226	303,436
88	2,146	744	744,000	" 39th "	.315754	234,921
89	1,402	555	555,000	" 40th "	.306537	170,140
90	847	385	385,000	" 41st "	.297628	114,587
91	462	246	246,000	" 42d "	.289059	71,084
92	216	137	137,000	" 43d "	.280848	38,484
93	79	58	58,000	" 44th "	.272972	15,798
94	21	18	18,000	" 45th "	.265489	4,760
95	8	8	8,000	" 46th "	.258787	770
Totals	69,804		\$69,804,000			\$88,756,240

of a contract and no one knows when he will die, each should pay \$555.22, or \$38,756,240 divided by 69,804. This is the net single premium for a whole life policy of \$1000 at age 50. The table shows in detail the processes in the calculation.

If we wish to calculate the net single premium for a policy which is not for life but for only a term of years, say twenty, we add the present values for the first twenty years and divide by the 69,804 which would give \$317.60, which is the net single premium at age 50 for a twenty-year term policy. This is less than the preceding net premium because in this case we assume that the company obligated itself to pay \$1000 only to those who died during the next twenty years. Those living beyond 70 would under such an assumption be paid nothing. However, for very obvious reasons few persons wish to pay for their insurance at one payment, although such a payment can be made for a policy to an insurance company. It is purchasing protection far distant in a future which the purchaser may not live to enjoy. He prefers to purchase protection as he lives, that is, by installments or in annual periods. That is, the ordinary buyer of insurance desires to pay annual premiums and not single premiums. It is, then, necessary to express the net single premium in net annual premiums.

As we proceed to calculate other forms of premiums, let the reader remember that they are equiv-

alent in value to the single premium. As the first step in calculating the net annual premium for a whole life policy, we must make our second calculation (*b*), that is, calculate a life annuity due. An annuity due is the payment of a stated sum at the beginning of the year to a person as long as he lives. It is thus the exact opposite of an ordinary life policy, since the latter is paid only in case of death. The value of the annuity due is the sum which the company must receive in order to make its annual payments at the beginning of the year to those living. Whereas the premium is ordinarily the small annual sum paid in order to receive the large sums at the close, the annuity calls for the large sum paid to the company at the beginning in order that it may pay the small annual sums at the beginning of each year.

The value of the annuity is calculated in the same manner as the single premium. Reverting to our first example of 1000 men at age 50, of whom 200 die the first year, 300 the second year, and 500 the third year, the problem is, how much should each of these 1000 men pay to a company in order that each shall receive \$1 at the beginning of each year that he is alive? Manifestly \$1000 is demanded now to pay the 1000 now living, hence there is no interest. But at the beginning of the second year only 800 are alive and at the beginning of the third year only 500 are alive. That is, the company will have to

pay out a total of \$2300. But the second and third payments have the benefit of interest for one and two years, respectively. Therefore, we calculate the present worths of \$1000 due now, \$800 due one year from now, and \$500 due two years from now. These amount to \$2248.0172, which is the amount that the company must collect now in order to pay a \$1 annuity to each now, and to each of the survivors at the beginning of each year that he lives. This sum divided by 1000 equals \$2.248, which is the sum each annuitant must pay under the assumption, if he is to receive the \$1 at the beginning of each year that he lives.

If now we substitute the American Mortality Table and follow the same process of calculation, we find that the value of a life annuity at age 50 is \$15.27 ; that is, such a payment made by each of the 69,804 persons at age 50 will secure to each, a payment of \$1 now and a like payment to each survivor at the beginning of each year from 50 to 95 inclusive. If we desire, as in the former case, to determine the sum that should be paid by each of the 69,804 persons at age 50 in order to purchase a twenty-year annuity of \$1, we simply calculate the present value of each of the sums demanded at the beginning of each of the years and divide it by 69,804. This is \$12.92, a less sum than the former, because the annuity of \$1 does not need to be paid by the company to each person surviving beyond the sixty-ninth year or twenty years beyond fifty.

The purpose in calculating an annuity was to use it as a means of changing the net single premium into a series of net annual premiums. We have seen that at age 50 the sum of \$15.27 will purchase a life annuity of \$1. That is, \$1 can be paid to him now and at the beginning of each year to which the applicant survives. Therefore, \$555.22, the net single premium, will purchase as many dollars of an annuity as \$15.27 is contained in it, which is \$36.36. That is, the \$36.36 paid now and at the beginning of each year to which the person survives is the equivalent of \$555.22 paid now and once for all time. Since this \$555.22 was the net single premium for \$1000 of insurance, so must its equivalent, the \$36.36, purchase by these annual payments the right to receive \$1000 insurance. This \$36.36 is, then, the net annual premium for a \$1000 policy on the whole life plan at the stated age.

It must be evident to the careful reader that the method of calculating the payments for the purchaser who neither wishes to pay a single premium nor annual premiums throughout his life is simple. Suppose he wishes to pay for his \$1000 life policy in five annual payments. We must in this case calculate the equivalent of \$555.22 — the single premium — in terms of a five-year annuity. By the previous method we calculate the present values of the sums due at the beginning of each of the five years, and find that \$4.59 is the value of an annu-

ity temporary for five years. Dividing this into the single premium, we have \$121.08, the net annual premium for a five-payment life policy of \$1000 at age 50.

If it is desired to calculate the net annual premium for a twenty-payment life policy of \$1000, the same method is used. That is, we calculate the value of an annuity temporary for twenty years, the first payment due immediately, assuming as has been the case in all the illustrations that age 50 is selected and the American Mortality Table with 3 per cent interest accumulations. The value of this annuity is \$12.92. We then divide this into the net single premium for a whole life policy, a sum previously calculated to be \$555.22, and get as a quotient \$42.95. This is the net annual premium for a twenty-payment life policy of \$1000 at age 50.

**The Limited
Payment
Premium.**

There remains, then, only one other of the important premiums to be calculated, namely, the endowment policy premium. An endowment policy premium is composed of a pure endowment premium and a term policy premium. A pure endowment is that form of a policy which guarantees the payment of a stated sum on condition that an individual lives to a certain date. In case of death previous to this time the sum named is not paid. Such policies are not frequently written and the words "endowment policy" now mean a pure endowment policy combined with a term policy.

**The Endow-
ment Pre-
mium.**

To calculate the premium on such a policy we must, therefore, calculate the premium on a pure endowment and the premium on a term policy. The sums of these will be the premium of the endowment policy. The problem is: calculate the net annual premium for a twenty-year endowment policy at age 50. We first determine the net single premium for a twenty-year pure endowment policy at age 50. That is, for what sum can a company agree to pay \$1000 to each of the persons living at age 70? By reference to the mortality table we learn that of the 69,804 persons living at age 50 only 38,569 will be living at age 70, and hence the assumed company will be called on to pay out \$38,569,000, at the end of twenty years. But the company can earn for twenty years 3 per cent interest on the single premium to be paid now. Hence the present value of the above sum is \$21,354,729, and this is the sum to be collected at once from the 69,804 persons. Therefore, the net single premium would be \$305.92. But again few will care to pay single premiums, preferring to pay annual premiums. We therefore calculate the value of a \$1 annuity temporary due now and at the beginning of each of the succeeding 19 years. This we previously found to be \$12.926. Dividing the single premium \$305.92 by 12,926 we have \$23.67, the net annual premium for a \$1000 pure endowment policy at age 50. Adding to this the net annual premium for a twenty-year term policy, \$24.57, we

have \$48.24 as the net annual premium for the commonly sold twenty-year endowment policy which in this case was at age 50. The premium for the twenty-year term policy is calculated by the same method that the five-year term premium was previously calculated.

It must be evident that while we have selected age 50 for our calculations, any other age could have been selected, and exactly the same methods would be used. The student should familiarize himself with the methods by calculating for different ages the net single, the net annual premiums on whole life policies, and the net annual premiums for limited payment and endowment policies. It must also be evident to the thoughtful reader that the net premiums of companies which use the same mortality table and the same rate of interest will be the same for the same kind of policy. But this net premium is not the one which appears in the rate book of companies nor the premium which is quoted by the agent as the price of a particular policy. It is the gross premium which is usually meant when the word premium is used.

The gross premium is the net premium plus the additional sum added for expenses and contingencies, which added sum is called the loading. **The Gross Premium.** The earlier method of loading was to add to the net premium a certain per cent of itself. It is not an easy matter in any business to separate and properly assess the expenses of the business, and in the insurance business the problem is particularly

difficult. There are joint, fixed, and variable expenses, almost defying any scientific analysis. For example, the expense of rent is largely fixed. An office force of a hundred persons is required to transact a certain amount of business, but probably an addition of fifty persons could transact twice as much business.

It is not surprising, therefore, that there has been considerable difference of opinion, and, consequently,

Loading. differences in the practice of companies in the method of loading policies. Nor is it surprising that rough and ready principles have often been used, which later investigation has shown resulted in loading too heavily some forms of policies.

The 3 per cent interest assumed is theoretically redundant enough to balance the losses due to unfortunate investments because the companies have for many years earned more than this rate. Likewise the assumed mortality is high enough in comparison with the actual mortality to make up for all contingencies that arise from unexpected mortality. This, then, leaves the loading to be used indiscriminately for expense. Now it is evident that the first year's expenses on a policy are greater than that of any succeeding year, for the agent's commission, the examiner's fee, and the expense of issuing the policy, each comes in the first year. After this the expenses on a single policy for any year are comparatively small.

In view of these facts the scheme was devised of writing policies on the preliminary term plan. That

is, the first year of the insurance is written on the one-year term plan, and this is followed by Preliminary the regular policy plan. If the contract is Term Plan. a twenty-payment life policy it would be written as a one-year term policy, followed by a nineteen-payment life policy. This does not mean that there are two contracts, but that the first year is considered term insurance. The premium collected is usually the same for the first year as for the succeeding years, but since the first premium is considered as purchasing only one-year's insurance, it does not need to make any contribution to the reserve. There is, therefore, a wide margin between the net premium for the one-year term insurance and the actual premium collected. This difference is used to meet the large expenses of the first year. For example, the net one-year term premium for \$1000 insurance at age 30 under the American Mortality Table at 3 per cent is \$8.18, while the quoted premiums for a twenty payment policy at this age from the rate book of a company writing insurance on the preliminary term plan is \$31.72. The difference is the sum taken for the first year's expenses. This preliminary term plan of writing insurance is widely used both in America and Europe. Several other devices are in use to provide for the large expenses incident to the first year of insurance, such, for example, as the modified preliminary term plan, the select and ultimate plan, but each has the same purpose in view.

A common classification of expenses of an insurance company is as follows: (a) new business; (b) collections; (c) investments; (d) settlements; (e) general. Even assuming that proper provision has been made for the first year's expenses, the problem

Expenses. remains of determining the distribution of expenses other than those due to new business. In other words, how and how much should the regular net premium be loaded? So far as the expenses can be definitely fixed and determined, a certain percentage of the net premium may be added to it. But there yet remain other expenses, such as the general expenses, which are varying, and for which it is difficult to secure a satisfactory basis on which to calculate this part of the loading.

It has been suggested that the net cost of insurance is a proper basis upon which to add these general expenses. At age 56 the amount at risk **The Amount at Risk.** during the first year on a \$1000 whole life policy is \$970.10, that is to say, it is the face of the policy less the reserve at the end of the first year, which is set aside for future mortality. The amount of risk is sometimes called self-insurance. In our hypothetical company of the 63,364 persons surviving to age 56, 1260 will die during the following year. If, therefore, the company had insured 63,364 persons at age 56, the expected net loss would be 1260 times \$970.10 or \$1,222,326. This is the cost of insurance for the first year, and the sum divided by the 63,364

persons living at the beginning of the year makes the annual per capita cost of insurance for a \$1000 whole life policy at this age \$19.29. This sum, it is argued, supplies a fair basis upon which to determine the loading for general expenses. Yet this is a somewhat arbitrarily selected basis, since some of the general expenses bear no necessary relation to it.

A method of loading frequently used is to make a certain percentage addition to the net premium plus a constant sum. A fact which complicates this subject is that the assumption is made in calculating the net premium that the death claims are made at the close of the years when, as matter of fact, they are distributed throughout the year with an average about the seventh month. This means that on the average five month's interest is lost on death claims. As an example of the difficulty of assessing expenses, what is a proper basis upon which to assess advertising expenses?

It has been suggested in view of the heavy taxes levied on insurance in some of the states that the premiums on policies sold in the offending state should have their normal loading increased. It is argued that this would serve as an object lesson in the incidence of insurance taxes. The subject of taxation is, however, reserved for later consideration.

The premiums of the assessment insurance have been discussed in a previous chapter sufficiently to indicate their character. It has been shown that the

premium of the industrial policies determine the amount of insurance, whereas in the ordinary insurance company the amount of the insurance determines the premium. The calculations for the premiums for industrial insurance are made in much

Premiums in Industrial and Fraternal Companies. the same manner as the premiums in ordinary companies, although the industrial companies are basing their premiums more and more on their own mortality experience. They are, however, level premiums. The loading in industrial insurance premiums is, however, much greater than in the ordinary life insurance company's premiums, due chiefly to the higher cost of transacting the business.

The practice of assessment and fraternal companies has been sufficiently described for the reader to understand that it is impossible to give such an explanation of the premium calculations as in the regular and industrial companies. In some of these companies the premium is simply the pro ratio mortality cost of the year, no reserve being accumulated; in others a mortality table, such as the National Fraternal Congress Table of Mortality, is used. In this case the premiums are determined as in the ordinary company, a reserve being collected. Some of the fraternal organizations use the ordinary mortality tables, and the premiums are calculated in the same manner as in the regular companies; some claim to use their own mortality experience as a basis of calculating

the premiums. For the other organizations operating on unscientific plans, no logical explanation of their premium calculations can be given.

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CHAPTER VII

POLICIES

THE policy is the written agreement or contract between the insurer and the insured. It is an offer made by the insurer and accepted by the applicant, who thereby becomes the insured. The medical and inspection departments of the company after investigating the physical and financial condition of the applicant certify their findings to the executive department of the company, which then offers to insure the applicant on such terms as the previously disclosed findings warrant. Ordinarily the contract is not completed until the policy has been delivered to the applicant, accepted during his good health and the first premium paid by him. In some cases at the time of securing the application a binding receipt is given for the premium then paid. This is an advantage to the applicant in that the policy is in force as soon as issued, although it may not be in the possession of the applicant. It is an advantage to the company in that the applicant cannot refuse to accept the policy, since he has already paid the first year's premium.

There are usually three parties interested in the contract : the insurer, the one who assumes the ob-

ligation to pay the insurance ; the insured, the one upon whose life the insurance is written; and the beneficiary, the one to whom the insurance is payable. The beneficiary may be, under some forms of the contract, the insured. The state is also interested in seeing that the terms of the contract are fair and that both parties observe its terms.

Life insurance policies are apparently of so many different kinds that beginning students of the subject are likely to be confused; further study of insurance, however, discloses the fact that the seemingly large number of different kinds of policies can all be reduced to a few simple forms. The contracts seem to be numerous because of the many combinations of the simple forms. Policies may be classified, first and most fundamentally, according to the manner in which they mature. First, life policies, that is, policies which mature only upon death and whose premiums are ordinarily paid annually throughout life.

Classification of Policies according to Maturity.

Second, limited payment life policies, which mature at death, but the premium paying period is completed at the end of 10, 15, 20, 25, or 30 years.

Third, term policies which provide temporary insurance, that is, insurance payable only if death occurs during a specified period, which is usually 5, 10, 15, or 20 years. Term policies may be renewable for successive equal periods, or they may be nonrenewable. A yearly renewable term policy is fre-

quently issued with increasing premiums and hence becomes a natural premium whole life policy. Renewable term policies may be renewed without a medical examination at the close of the period. Term insurance may be for increasing amounts, as in the return premium feature when in case of death within a certain period the company agrees to pay the premium up to the time of death in addition to the face of the policy. Term insurance may be for decreasing amounts, as when taken out to cover a mortgage, which is reduced year by year. The insurance decreases with the amount of the mortgage. In order to secure funds for expenses companies may write a regular policy on the preliminary term plan, that is, make a twenty-payment policy a one-year term policy, followed by a nineteen-payment life policy. This subject will be discussed further when we treat of the premium and the reserve.

Fourth, endowment policies, which mature in case of death during a specified period or in case of survival to the end of that period. This policy is a combination of a term policy and a pure endowment policy, which pays only in case of survival. Endowment policies are usually for quinquennial periods of 15, 20, 25, 30 years or mature at quinquennial ages such as endowments at age 50, 55, 60, 65, etc. A double endowment pays, for example, \$2000 in case of survival or \$1000 payable in case of death, and a semiendowment pays \$500 in case of survival or

\$1000 payable in case of death. Endowment policies may be paid for by annual premiums until the end of the endowment period or they may be paid for by a limited number of premiums, that is, by ten premiums, fifteen premiums, or twenty premiums. In this event they are called, for example, a ten-payment twenty-year endowment policy.

Policies may be classified in the second place on the basis of dividends, that is, participating policies, those which share in the earnings of the company and nonparticipating policies, those which do not share in the earnings of the company and therefore have a lower premium than the participating policies of the same kind and for the same age. The participating policies may participate annually, quinquennially, or at longer periods, although the longer periods have been forbidden in many states. The dividends may be used to reduce the premium, to buy additional insurance, to hasten the endowment, to shorten the premium paying period, to accumulate interest with the company for the policyholder, or they may be taken in cash.

**Classifica-
tion of Poli-
cies accord-
ing to
Dividends.**

In the third place, policies may be classified on the basis of the kind of premium, that is, those in which the premium is a natural premium, a single premium, or the level annual premium. In this classification, the first is of least importance, for few policies are written on this plan. Policies in assessment soci-

**Classifica-
tion of Poli-
cies accord-
ing to
Premiums.**

eties may be written with premiums below or above the natural premium, although this premium in theory is the basis of the assessment plan of insurance. Some policies are written with a comparatively low premium for the first five years and a larger premium thereafter; others are written with a large premium to begin with, and the premium is reduced by fixed amounts at stated periods thereafter.

Again policies may be classified on the basis of the character of the settlement. That is, the policy

Classifica- tion of Poli- cies by Modes of Settlement.	may provide at maturity for a cash settle- ment, for installments, for bonds, for annuities, or for continuous installments. It must not be understood, however, that it is intended to convey the idea that each one of these plans is mutually exclusive of all others. As a matter of fact, they are not. For, example one may purchase by a single premium a twenty-year endow- ment policy, the settlement of which may be in cash, in installments, or in annuities.
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Again any ordinary form of policy may be purchased on the nonparticipating plan. Many other different combinations of the previous classifications may be made.

The most important classification of policies is that of life, term, limited payment life, and endowment policies. This is the classification ordinarily meant when a person speaks of the different kinds of policies. The one hundred or more different

kinds of policies are usually some form of these four kinds of policies.

For example there is a joint life policy which may be purchased by husband and wife. The face of such a policy is paid upon the first death — that is, of either husband or wife. Or a joint policy may be purchased by a group of men associated in business which is payable at the first death of one of the partners in the business. There are very decided objections to this policy, both from the standpoint of the company and the insured. Companies usually prefer to write single policies on each life of the persons desiring protection. In the case of husband and wife, if the latter die first, the husband may not then be insurable at this latter date, and yet he may have obligations, such as young children, which would demand that he have insurance. If each had carried individual policies, all the benefits from a joint policy would have been realized and in addition the children would be better cared for in the event of the death of the husband, subsequent to that of the wife. In the case of partners in business, the death of any partner terminates the insurance,—the protection,—but if there are more than two members in the firm, there still exists a reason for insurance as a firm asset. If a partner withdraws from the firm, there is no reason for the further existence of the joint partnership policy, whereas if there had been individ-

ual policies, the withdrawal of a member of the firm would have simply involved the change of the beneficiary.

A policy somewhat similar in purpose to this, and one that is becoming more numerous, is that in which a corporation takes out a policy in its favor upon the life of its president or on the life of some expert employee.

There is also a return premium policy in which not only the face of the policy is paid, but also a certain portion or all of each premium is returned if death occurs within a specified time. This manifestly calls for an extra premium, and the objections to such a policy are evident. There are many other forms of policies, but the more important of them will be considered in the discussion of the method of settlement of policies in the latter part of the chapter.

In attempting an analysis of the policy contract it is difficult to make statements which apply in all

cases to the different policies now in force.

**Analysis of
the Policy
Contract.**

This difficulty arises from the fact that the insurance business is a subject for regulation by the numerous states and not the national government, and consequently the policy contract is theoretically and actually in many cases what the various legislatures choose to make it. Much has been done in the way of state uniformity, but much yet remains to be done. In many partic-

ulars little of state comity has been recognized. The characteristics of the state legislation as pertaining to the policy contract were so changed after 1905, as a result of the insurance investigation, that a description in general terms of the policy provisions previous to that date and an outline of the chief requirement adopted since 1905 as they apply to the contract are given. Let not the reader forget, however, that we are attempting to state what is true of forty-five different and independent states' regulations and also what is true of several times that number of insurance companies, for the policy contract is in part what the different legislatures say it shall be, and in part what the different companies wish it to be.

The policy contract in the early history of insurance had what now seem very many harsh provisions. The insured had practically no privileges. The contract was a whole life policy contract which was absolutely null and void, not only for failure to pay premiums, but also for changes in place of residence and occupation. Companies could easily avoid payment of the policies because warranties and not representations were the rule, with the consequence that many of the insured lost the result of their payments for many years, since warranties must be absolutely true and representations need be only substantially true. Partly as a result of the harsh terms of this contract the

Develop-
ment of the
Policy.

whole life policy as a form of insurance came into an ill-repute, from which it has not yet recovered. This form of policy deserves greater popularity and will certainly have it when the purchasers of insurance learn to appreciate its merits. The average agent does not make much effort to sell this policy at present because he often does not recognize its value, and also because it is usually easier to sell some other form of a policy and because his commission is larger on the larger premium policies.

The historical development of the form of the policy was, in order, a whole life policy, a limited payment life policy, and an endowment policy. In time there was developed a form of policy which provided for an annuity to the beneficiary only after the death of the insured. But this had the short-coming that the beneficiary might die first and the insured would have paid premiums, — as he erroneously argued, — on which nothing was given in return. This caused the installment plan to be devised, under which the proceeds of insurance policies are paid during a stated period of years, usually from five to twenty. This form was later modified so that not only the installments certain were paid during the period provided, but also payments of equal amounts were made to the beneficiary if the beneficiary lived beyond the period named in the installment clause.

The policy after having been granted by the executive department of the company does not as

a general rule become binding on the company until it has been accepted by the insured in good health and the first premium has been paid by him. A receipt called "the binding receipt" may be issued by the agent for the premium which is paid at the time of soliciting the application. This binds the company to pay the face of the policy as soon as it is issued. All premiums are paid "in advance." Premiums are not in reality paid in advance for the insured, — the purchaser — gets his commodity — protection — as soon as he receives and pays for the policy. The title to the policy may rest either in the insured or the beneficiary, depending upon whether, under the terms of the contract, the insured may at will change the beneficiary. If he may so change it, then the beneficiary has only a contingent interest, since the insured may at any time nominate another beneficiary, such as his estate or another party. Otherwise the policy can be transferred to another only by assignment by the insured.

The laws of the greater number of states do not make the proceeds of the insurance policy an asset for meeting the debts of the insured, unless it is made payable to his estate, or unless possibly the creditors can prove that an insolvent debtor took out the insurance after insolvency with fraudulent intent. In this connection the question of what constitutes an insurable interest arises. It

may be stated that this interest exists in all cases when the proposed beneficiary is dependent upon the insured for support, or is his creditor, or would suffer a monetary loss by the death of the insured. Mere affection or mental anguish does not constitute a basis for an insurable interest. Nor does relationship in itself establish an insurable interest unless, as is often the case, the relationship involves legal claims. A brother may, for example, have an insurable interest in a brother if he has advanced money for his education. The underlying principle of the insurance contract is indemnity, that is to say, it is a compensation for a loss sustained. It therefore follows as a consequence that the idea of profit is excluded so far as the insured is concerned, and the idea of pecuniary interest included so far as the one having an insurable interest is concerned.

The amount of the insurance is ordinarily a matter to be decided by the company and the insured, but if the amount of the insurance taken out by a creditor on the life of his debtor is far in excess of the creditor's claims, the contract may be declared a wager by the courts and therefore be illegal.

It must be understood that there is a difference between an insurable interest and the right, legal or otherwise, of the insured to select his beneficiary. The first has to do with the right of A to take out insurance on B in favor of himself or to have B insure himself in favor of A. The sec-

**The Bene-
ficiary.**

ond has to do with the right of B to select his beneficiary. It is becoming increasingly the practice of companies and courts to permit the insured who pays his premiums from his personal income to select whomever or whatever he pleases as his beneficiary, since ordinarily a person always has an insurable interest in his own life. This practice is but in harmony with the general principle that one has a right to do with his own as he chooses, so long as he does not injure others or himself in the disposition which he makes of it. However, neither the companies nor the courts could afford to encourage crime by permitting an individual to take out a policy on the life of an individual in the prolongation of whose life he would not be interested.

When it is stated that the insurance contract is an unfair one because the insured is not bound to continue as a party to it while the insurer is so bound, it must be remembered that the insurer has laid down in the contract the conditions — or has accepted the conditions as fixed by the state — under which alone the insured may discontinue as a party to the contract. Life insurance contracts, like all other contracts, are construed by the courts against those who frame them on the theory that the makers of the contract have drawn them in their own interests. If there is an apparent conflict between clauses in the body of the contract and clauses attached or written,

Legal Construction of the Contract.

the latter take precedence over the former. It is customary for the contract to contain a clause which specifically states that the company is not bound by statements of the agent; that the printed contract is the sole contract between the company and the insured. Undoubtedly some purchasers of insurance have been deceived or misled by the statements of agents, but recourse does not ordinarily lie in an action against the company for statements made by the agent. It is the duty of the buyer to acquaint himself with the terms of the contract before he accepts it. It may well happen that the buyer of legal reserve insurance will not get what he wants, but there is little danger that he will not get the worth of his money in these days of competition among the old line insurance companies and the state regulation of their business. Less than 1 per cent of the claims against insurance companies are contested in the courts by the companies. It is also significant that the companies win more than 75 per cent of these contested claims, for no company will contest a claim on trivial grounds.

While it is not a part of the contract it is a principle of all companies to establish the minimum and maximum age below or beyond which they will not write policies. The lower limits vary from 15 to 21 years of age and the upper from 60 to 75. The object is to confine the premium paying period to the productive years of life. The so-called investment

policies are sold by some companies after age 60 of the applicant, and children's policies are sold by industrial companies merely to cover funeral expenses.

The disability clause recently included in the policies of some of the companies has attracted considerable debate. It usually provides for a cessation of premiums when the insured becomes The Disability Clause.

totally and permanently disabled as a result either of bodily or mental disease or accident. In some cases the period of insured disability is limited, that is, it does not extend beyond 60 or 65 years of age. In some cases the company offers the disabled a cash sum in cancellation of the policy or agrees to pay the face of the policy in installments or grants an annuity. The debate on this clause centers around two points: First, how much of an addition should be made to the regular premium for this clause, or, in other words, how much should be charged for the disability insurance. The number of insured individuals or even the number of such individuals in the population group who thus become disabled is not known. The problem of cost is far yet from solution, but a very common charge is either 25 or 50 cents per year per \$1000 of insurance. In some states the life insurance policies may not contain this disability clause. It must constitute a separate policy with its own premium and terms. In Ohio, the disability clause may be inserted in life insurance policies, but the clause must provide for its own premium and for its own

cancellation, so that the clause becomes in effect an independent contract.

The second point of debate is the determination of what constitutes a total and permanent disability. An answer to this question is difficult to get which is satisfactory to the contracting parties. An apparently permanent disability sometimes becomes only temporary, and in these days of minute division of labor a disability must be quite complete in order to make the insured absolutely unable to earn anything. In an effort to make this clause more specific, some companies make a partial definition of this phrase by stating that a loss of both eyes, of hearing, or of both hands, or of both feet constitutes total disability and it then permits the remaining causes and conditions of disability to be decided later. The practical administrative difficulties are not thus solved, and it is very questionable whether this attempt to combine in one policy life and accident insurance will redound to the advantage of either form of insurance. It is always conducive to scientific accuracy to have as few as possible varying forces about which to treat in insurance, not to mention the administrative difficulties which are always present in applying any scientific principle.

The disclosures which were made as a result of the investigations of the life insurance business in 1905 led to laws establishing a standard policy in New York, but this soon gave way

The Stand-
ard Policy.

to standard provisions in the policies. The requirement of standard provisions is now the general rule in most states, and what we have to state farther about the policy contract will be included in our description of these standard provisions.

It must not be inferred that the privileges, or the liberal provisions, as they are called in present policies, were adopted wholly as a result of legislative compulsion. In fact, the liberalization of the policy is not due primarily

The liberalization of the Contract.

to legislative enactment but to the following causes: First, in the early days of insurance no data had been accumulated to determine conclusively that the proposed plans could be successfully applied. To guarantee solvency as completely as possible, absolute forfeiture was provided in many cases in order that the insurance fund might be augmented; extra premiums were required for a change of occupation and residence, even though the latter was in the same latitude; premiums paid in were forfeited in case of suicide, death at the hands of justice, or in the military or naval service, or if the statements made in the application were untrue in any respect. When experience disclosed that many of these restrictions were unnecessary and the decision of courts failed in some cases to recognize their validity, the companies gradually began to omit the harsher restrictions. Second, as insurance companies became more numerous, the competition thus brought into existence did

more than all the legislation to liberalize the insurance contract. The beneficent effects of competition have clearly shown themselves in the case of the insurance business. Companies have so vied with each other in making the policy contract attractive to the purchaser that it may be increasingly true that one of the chief functions of state supervision will be to compel companies to keep their liberality within the bounds of safety. The above statement seeks in no manner to minimize the actual accomplishments of legislative enactments and state supervision, but the chief work in liberalizing the contract has been voluntarily done by the companies as a matter of business. The best work of the state has been in establishing standards of solvency and compelling, by continuous supervision, the companies to maintain these standards.

The important standard provisions of policies are as follows :

First, the distribution of the surplus, that is, the payment of dividends, must be made annually after the third year of the policy. In some **Standard Provisions.** states dividends may be paid quinquennially. The details of this provision are reserved for discussion in a succeeding chapter.

Second, loans must be granted up to the reserve value of the policy, less a small deduction of not more than $2\frac{1}{2}$ per cent of the face of the policy. A failure to pay the loan does not forfeit the policy

unless the total indebtedness should exceed the reserve value of the policy ; and then 30 days' notice must be given the insured before canceling the policy.

Third, the policy must contain a copy of the application, and the policy with the application must constitute the entire contract. All statements of the insured are to be considered as representations and not warranties.

Fourth, one month's grace must be permitted for the payment of any premium after the first.

Fifth, a table must be in the policy which shows the loan values, and nonforfeiture values in case premiums are not paid.

Sixth, reinstatement must be granted within three years after a premium has not been paid upon the payment of the premiums in arrears with interest provided the insured can supply evidence to the company that he is insurable.

Seventh, death claims must be paid within at least sixty days after due proof of the death of the insured.

Eighth, a table must be in the policy which shows the amount of installments in which the proceeds of the policy may be payable.

Ninth, the policy must definitely set forth the options of settlement. The policy is matured either by death or by completion of the contract, as, for example, by the payment of all premiums in the case of a twenty-year endowment policy. The question

then arises, How shall it be settled? The insured may elect to receive cash, or to apply the cash due to the purchase of increased insurance or of an annuity. In a great many policies he may elect to receive a part of the cash due and the remainder in installments. In fact, one can purchase a contract from a life insurance company which will provide for almost any kind of a settlement upon maturity of the policy.

Tenth, a clause which provides that the insured in case he defaults his premiums shall not forfeit his insurance, but shall be entitled to receive **Forfeiture.** either paid up insurance or extended insurance or a cash sum. These sums must be equal at least to the reserve held on the policy and the dividends due on the policy less any indebtedness on it and less a sum not in excess of $2\frac{1}{2}$ per cent of the face of the policy.

The causes which have been responsible in most cases for a forfeiture are (a) nonpayment of premium when it was due; (b) residence in an unhealthy climate, change of occupation, or suicide; (c) fraud in obtaining a policy; (d) the absence of an insurable interest. The last two causes have not been modified to any extent by the action of legislatures or by the companies, except, as we shall see later, a definite period is fixed within which actions at law must be instituted to determine whether fraudulent means have been used. The first and second reasons for forfeiture have been very materially modi-

fied, both by law and action of the companies. The Massachusetts legislature under the leadership of Elizur Wright, its noted insurance commissioner, led the way in requiring nonforfeiture provisions in a policy when it required all companies doing business in that state to grant a retiring policyholder extended insurance. This law was passed in 1861. The length of time the insurance was extended beyond the date of withdrawal was determined as a matter of course by the reserve value of the policy.

We shall remember that in level premium insurance the policyholder pays more than the natural premium or cost of his insurance in the early years and accumulates a reserve and pays perhaps less than the cost in the later years. Many of the companies at this time were paying either surrender or cash values, but the companies did not incorporate in the policy what some were doing in practice. A cash surrender clause did not appear in any policies until 1869 and did not become a general practice whether made a part of the policy or not, until very recent years. Both the cash surrender value and the extended insurance, which, as its name implies, is extending to a future period the face of the policy after premiums are no longer paid, were feared by the company officials. They feared an unfavorable selection.

Forfeiture on account of a change in residence or occupation has tended to disappear on account of the better knowledge of regions, dangers of occu-

pations, and better understanding of sanitary and hygienic principles. The companies now refuse to insure those who live in certain districts or those who are engaged in certain occupations. The few insured lives who do go to these unfavorable regions or engage in hazardous occupations do not appear to produce serious results on the mortality experience of the companies. An example may be given of what this nonforfeiture meant fifty years ago in comparison with policies now written by a reference to the policy provisions of one of the large life insurance companies' policies. The purchaser agreed fifty years ago that his policy became null and void if without the company's consent he passed beyond the settled limits of the United States or Canada or even visited those parts of the United States west of longitude 100°. Nor could he go south of Virginia and Kentucky in the summer time or live within ten miles of the Mississippi or Missouri rivers south of latitude 40°. All service on boats or trains was forbidden, as well as military service except in time of peace. Death by suicide, duelling, and execution by the state voided the policy. At present all policies in this company are free from restrictions of residency, travel, or occupation, and failure to pay the premium after two full premiums have been paid does not void the policy.

Eleventh, a clause must be in the policy, which provides that the policy is incontestable after two

years for practically all causes except the nonpayment of the premium. Some companies have voluntarily made their policies incontestable after one year. By contestability is meant **Incontestability.**

the right of the company to contest in the courts any claim which arises under the policy contract. There has been much discussion of this clause, both as to its advisability and as to the extent to which it binds the company. It is a means of affording greater security to the older policyholders. Its adoption has manifestly led to the withdrawal of other restrictions since if this clause is binding on the company, the latter is not free to resist any claims made upon it by a policyholder who has violated any one of the many earlier restrictions of the policy. It led to a withdrawal of many of these former restrictions. The question naturally arises, Should a company be thus prevented from resisting the payment on a policy which was obtained by fraud? Does public policy demand that the wit and ingenuity of the company officials should be pitted against that of the individual who seeks to obtain for himself or others money by fraudulent means? In actual practice it means that the company must discover, before issuing the policy or within a comparatively short part of the time that the contract runs, whether fraud has been used. It has been held (*Reagon v. Insurance Company*, 76 N. E. Reporter, 217) that a provision in a life policy which makes it incontestable for fraud

from date of issue is invalid but that such a provision, operative after a certain date, is valid. There is without doubt a danger from making the policies too liberal in this particular, not so much because the financial security of the company is seriously injured, but rather in thus permitting, if not encouraging, fraud. This clause indicates more forcibly than does any other the reaction that has taken place against the harsh restrictions of the old policy contract. The companies have sought to make their policies more attractive by thus liberalizing them, and the modifications have resulted more from business competition than from legislative or judicial action.

Twelfth, a title on the face and on the back of the policy correctly describing the same.

In addition to the above standard provisions, there are also standard prohibitions which are required with a view of protecting the policyholder. Among these prohibitions, the following important ones may be mentioned : —

First, the failure to pay a loan or the interest on it may not forfeit a policy if the total indebtedness is less than the loan value and in no case can forfeiture for this failure take place before the policyholder has been notified at least one month previous to the forfeiture.

Second, no policy may contain a provision limiting the time within which any action at law or in equity may be commenced to less than five years after the cause of action shall accrue.

Third, no clause may be included by which the policy shall purport to be issued or to take effect before the original application for the insurance was made, if thereby the insured would rate at a younger age than his actual age at the time at which application was made. This clause permits only the age at the nearest birthday to be taken and prevents "dating back" of policies, a method of rebating practiced by some agents.

Fourth, no provision is permitted for a settlement at maturity of less value than the amount insured on the face of the policy plus any dividend additions and less any indebtedness.

Fifth, no policy can be issued until the form has been filed and approved by the insurance commissioner. This prohibition is intended to prevent the numerous "frill" policies, designed to attract the impressionable purchaser, but which had little to commend them. Both the standard provisions and the standard prohibitions are now used in many states.

There is little prospect that the problem of monopoly will have to be met in the insurance world. The principle of diminishing returns operates very clearly. Other conditions preventing a monopoly are: (a) the comparative ease of organizing new companies, both on account of the small amount of capital required and the comparative ease with which legal

Absence of
Monopoly in
the Insur-
ance Busi-
ness.

requirements may be met. Potential competition is always present, although the number of new companies which are organized and prove successful is not large. However, the economies to be secured by consolidation of many companies with a view of establishing monopolistic conditions are not important.

(b) The local pride that is taken in a home insurance company.

(c) The disproportional increase in variable expenses, such as agency force and office expenses, after a certain size of the business is reached.

(d) The increased difficulty of finding desirable investments for the increased funds of the company as it becomes larger.

Only indirect reference has been made to annuities, but they have an important relation to the business of insurance. Insurance companies not only
Annuities. sell insurance policies, but also annuities.

Annuities also arise in the case of levying inheritance taxes when a proper basis is sought for levying this tax by a calculation of the value of life estates, temporary estates, joint life estates, survivorship estates, and contingent estates. Since the basis upon which the annuities are calculated is much the same as that upon which insurance policies are calculated, that is, the mortality table and the compound interest principle, a brief description of the different kinds of annuities may be given.

An annuity is a sum of money payable at stated intervals so long as the annuitant is alive.

The practice of granting annuities is very old, a Roman law of 40 B.C. having laid down the conditions under which annuities could be granted. Tables were drawn up from the very early experience on annuitants which have been made more exact from later experience just as in the case of the ordinary mortality table. The actual experience on annuitants varies from that on insured lives from the fact that no one will purchase an annuity unless he feels confident that his physical conditions give good promise of longevity. An annuity contract is issued to any one without a medical examination; for it is evident that the sooner the annuitant dies the greater the gain is to the company. In this respect an annuity is the opposite of life insurance.

The chief kinds of annuities are :—

First, an annuity contingent in which the beginning or continuance of the amount is contingent on the occurrence or nonoccurrence of a particular event involving the duration of one or more lives.

Second, an annuity deferred in which the payment begins only after a certain time, as, for example, when an annuity begins after a period of twenty years.

Third, an annuity due, which is a life annuity, the first payment of which is now due.

Fourth, a joint life annuity, in which the annuity

is payable to two or more persons, the payments ceasing upon the first death.

Fifth, a survivorship annuity, which is a life annuity in which the payments to one or more persons are contingent upon these persons surviving one or more other persons. Such a contract may be purchased by a husband in favor of his wife for a comparatively small sum and is sometimes called a reversionary annuity.

An annuity certain is a payment of a certain sum of money annually for a given period of time. Sometimes an annuity certain is classed with annuities, but it is not correctly so classed for the annuity certain does not depend fundamentally on the life of the recipient. It is a fixed sum to be paid for a fixed period of time and therefore involves only the interest principle and in no way the mortality table. In those states in which a life insurance company is prohibited from doing a banking business, a life insurance company could not issue an annuity certain, which is really a banking business. However, the holder of a life insurance policy may provide in his policy for the payment at his death of its proceeds in installments of a fixed number and amount which is an annuity certain. It is always stipulated that if the beneficiary should not live to receive all the installments, the remaining installments — or their commuted value — will be paid to some other person.

The sale of annuities by insurance companies has never assumed great importance in the United States, but in England the practice both by the insurance companies and by the government has been more prevalent.

We reserve for later discussion the subject of policy comparison and that of buying insurance in which connections we shall again revert to the provisions of a policy contract in order to understand the significance of particular clauses.

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CHAPTER VIII

THE RESERVE, SURPLUS, AND DIVIDENDS

WE have seen in the previous chapter that the net annual premium collected by the insurance companies, operating on the level premium plan is in excess of the actual cost of the insurance during the early years of the contract, but below the cost in the latter years. This excess of the earlier years is accumulated into a sinking fund or a reserve to meet the deficiencies of the later years. The reserve is the difference between the present value of the benefits promised in the policies and the present value of the net annual premiums to be collected in the future. Therefore, the reserve is sometimes called the unearned premium income. This assumes that all the net annual premiums at a given date have been paid and that the future experience will be in harmony with the calculated experience. This fund together with the later annual premiums received and the interest accumulations will pay for that protection which is promised at that later date when the net premiums are less than the annual costs. Recalling our illustration of the rectangle and the triangle and thinking of a single life insured on the level premium plan, the reserve originates from the excess collections in the early

years which are used to balance the deficient collections in the later years.

If each of the members of the theoretical insurance company starting with 100,000 members and insuring no new lives would pay his single net premium, this would constitute a fund which with its interest accumulations would be sufficient to pay the future death claims. From one point of view the reserve is also called the reinsurance fund, that is to say, it is such a collected fund that the original company or any other company could meet all its obligations by the proper care of this fund, augmented by future collections from policyholders. It is on account of the accumulation of this sinking fund that old line level premium companies are able to close up their business by selling or reinsuring their business in another company. This assumes that the lives have been properly selected. If this is not the case, or if the company and its investment have not been properly managed, another company might not be willing to assume these obligations on the basis of the reinsurance reserve held for these risks.

In order to understand the method of determining the reserve, let us take, for an example, the company of 100,000 persons insured under the American Mortality Table on a 3 per cent interest basis. At age 50 only 69,804 are living, and the company promises to pay to each \$1000 at death. It has been shown that the single

**Method of
calculating
the Reserve.**

premium for such a policy at this age is \$555.22. The total collections by the company must, then, be sufficient with the annual interest additions to mature all of its obligations. The company will, therefore, collect at the beginning of the fiftieth year a total of \$38,756,576.88, which will draw a 3 per cent interest, making the total sum at the close of the year \$39,919,274.18. From this sum the death claims of \$962,000 must be paid, leaving \$38,957,274.19.

This last sum may be called the terminal reserve which divided by the number now living, 68,842, gives

The Terminal and Individual Reserve: \$565.89, which is the individual reserve at the close of the fifty-first year of age.

In a like manner this sum will accumulate, and payments will be made from it on account of death claims until under our assumptions there will be in the ninety-fifth year of age just enough with the interest accumulations of that year to pay the final claims of the three expiring policyholders. It can be seen from the above example that the aggregate reserve or the reserve held for all policies in this assumed company is a continually decreasing sum, but that the individual reserve is annually increasing. It must also be evident that the individual reserve at the close of any year of age is the single premium for \$1000 of insurance on the ordinary life plan at the attained age. For example, the individual reserve at the close of the fifty-fifth year of age is \$621.18, and this is also the single net premium for

any person at age 56 who wishes to become a member of the company. Those who have become members earlier have provided for their insurance by paying once for all a sum which, on account of its longer interest accumulations, is smaller than this sum; and the new member must pay a larger sum, although he is of the same age as the other members. It is necessary for him to do this in order to equalize the difference in length of membership or in other words to balance the effect of the interest accumulations. We have seen, however, that few persons care to pay the single premium, but prefer to pay annual premiums which it has been shown must be collectively the mathematical equivalent of the single premium. Likewise it may be shown that the reserve accumulated from annual premiums will be as effective as that accumulated from the single premiums.

We have found that the annual premium at 50 years of age for a whole life \$1000 policy under the American Mortality Table at 3 per cent is \$36.36. If each of the 69,804 members now living pay this sum, the amount at the close of the year with its 3 per cent interest accumulations will be \$2,615,215.64. From this sum the \$962,000 death claims will be paid, leaving \$1,653,215.64 as the terminal reserve at the close of the first year of the policy which divided by the 68,842 then living at age 51 gives \$24 as the individual reserve at the close of the first policy year. But we have just shown that the individual reserve in the

case of the single premium was far greater than the sum just calculated. Again the net annual premium for a person age 51 is not \$24, the individual reserve of the last calculation. Can the company be said to be equally as solvent as in the first case? If so, how shall we reconcile these apparent discrepancies?

The explanation is to be found in the difference in the terms of the contract. In the first case, that of

The Reserve under the Annual Premium equivalent to that under the Single Premium.

a single premium, the company agreed to pay to each policyholder at his death \$1000 because each paid the large sum, the single premium, once and for all time. In the latter case the insured agreed to pay the \$36.36 at the beginning of each year during life. If he lives throughout the year and does not pay his second premium the company is not under obligation to pay the \$1000 at his death. It is true, since it is a net annual level premium and not a net annual natural premium, that he has more than paid for his protection and therefore a sum can be returned to him as a cash surrender value which is based upon the difference of these two premiums, for the company is then freed from any future obligations to him. Let us notice further how the discrepancy is removed. If the company has the promise of each to pay annually these net premiums, may it not take credit for their present value as an offset to the present value of its promised benefits? At age 50 there were living 68,842 persons, each of whom agreed to pay

\$36.36 annually as long as he lived. The question then is, What is the present value of these future payments? The value at age 51 of an annuity of \$1 paid at the beginning of the year and at the beginning of each subsequent year is on 3 per cent interest accumulation \$14.9045. Therefore, the value of \$36.36 would be 14.9045 times this sum or \$541.9286 for each of the 68.842 persons and for all of them \$37,307,448.68. This sum added to the aggregate terminal reserve at the close of the first policy year under the net annual premium paying plan beginning at age 50 equals \$38,960,664.32, the aggregate terminal reserve at age 51 under the net single premium paying plan. The small difference would disappear if decimals had been used in the calculation. Thus the small reserve on the annual premium policy is just as effective as the large reserve on the single premium policy. Again, the present value of the \$36.36 premium is \$541.92 (36.36 times \$14.9045), and this sum subtracted from \$565.89, the individual reserve under the net single premium plan, leaves \$23.97, or practically \$24, the individual reserve under the net annual premium plan.

In the same manner the reserve may be calculated for limited payment policies as well as for the endowment policies. In the latter case, for example, the net annual premium for a twenty-year endowment policy of \$1000 at age 50 upon a 3 per cent interest basis is \$48.24.

**The Reserve
on Limited
Payment
Policies.**

From this is subtracted the net mortality cost of this year, that is, the net natural premium for \$1000 insurance at age 50, which is \$13.38. The remainder, \$36.30, is the terminal individual reserve. Continuing the calculation or applying the method previously described in detail, it will be found that at the beginning of the twentieth year of the policy there will be an initial reserve of \$970.88, which with the 3 per cent interest accumulation will be exactly sufficient to mature the policy of \$1000.

It will thus be seen that there is nothing mysterious about the reserve. It is not to be compared, as

**The Necess-
sity for the
Reserve.**

was done by the early supporters of assessmentism, to a fifth wheel in a wagon. It is the indispensable requisite of scientific insurance on the level premium plan, and as it has been previously shown that the natural premium plan is in practice impossible, the reserve becomes the *sine qua non* of all insurance. It is not the result of legislative enactments, but is the cause of most laws which have reference to it. It is a deposit and a convenience for the policyholder and not a source of profit for the company. The reserve is not an asset, but a liability by which the annual premium is kept from increasing in face of the increasing risk against which it protects the policyholder.

A general rule for obtaining the reserve on any policy is to obtain the present value of the benefits promised by the company and subtract therefrom

the present value of the future payments promised by the insured. The reserve must be kept continuously invested at compound interest annually at a rate at least one half of 1 per cent higher than the rate used in calculating the premiums in order to cover the investment expenses.

Rule for calculating the Reserve.

The reserve of an insurance company cannot be accurately compared with the reserve of a bank. The purpose in view of the collection is different in the two cases. If any element of comparison can be made, it exists between the reserve of an insurance company and the deposits of a bank, since in each case these are the amounts received from the persons with whom the bank and the insurance company are doing business. They are respectively the debits to the patrons of the two companies. The reserve of a bank is only a small part of its obligations to the depositors. Nor does the percentage existing between the reserve and deposits of a bank and the reserve and the face value of the policies in an insurance company bear any definite relation. The bank has obligated itself to pay to its depositors all their deposits, but an insurance company obligates itself to pay the face of the policies only in the event that the policyholders continue to pay the specified annual premiums. In an effort to understand the insurance business, attempts are often made to compare

The Reserve not Comparable with a Bank Reserve.

its funds with those of a bank, but such comparisons usually result in greater confusion.

The term "surplus" is used in two leading senses when applied to the insurance business: first, that

sum which remains at the close of any calendar year after death claims and the current expenses of conducting the company have been paid; second, the sum remaining after current expenses, annual death claims, and the reserve is deducted. It does violence to the ordinary meaning of the word surplus to apply the first definition. A somewhat parallel example would be for a person to borrow \$32,000 to engage in agriculture. Suppose he pays \$30,000 for the farm and \$2000 for equipment and at the close of the year finds that he has \$3000 as a result of his farming. He would not be justified in claiming that he has a surplus of \$1000 because he has \$1000 remaining after he pays for his equipment. Nor would \$500 be his surplus, if he allowed \$500 for his services, for he owes \$32,000 for the farm with the interest thereon. Just so the life insurance company cannot call a surplus all that sum which remains after the current year's expenses and death claims are paid. A sum equal to the aggregate reserve on all policy obligations must be set aside.

Let us again consider the net premium in order that we may understand the composition and origin of the surplus. It will be recalled that a company

assumed that a certain rate of interest could be earned and also assumed from the mortality tables a certain number of claims would fall due. It was able then to calculate the sum which it would need to collect. To this sum, the net premium, it made certain additions, called loading, for the purpose of covering expenses and contingencies. There would thus be three main sources from which a surplus might be secured, namely, interest, mortality, and loading. That is to say, a saving might be effected from any one or all of these sources.

Composition
and Origin of
the Surplus.

The rate of the interest which the insurance companies assume that they can earn on their assets has always been conservative, and in actual practice they have been able to earn more than the assumed rate. The rates now most generally assumed are 3 per cent and $3\frac{1}{2}$ per cent. The expenses incurred in investing the assets are charged against the interest income. Since these investment expenses may amount at least to one half of 1 per cent on the assets, it is necessary to earn sufficient to cover the investment expenses in addition to the interest at the assumed rate before there is any surplus from interest. Many of the old policies now in force on the books of insurance companies were issued on a 4 per cent interest assumption and on the reserve of such policies, 4 per cent interest must be earned in addition to the

Interest
Savings.

investment expenses before there is any surplus for these policies from interest.

We pass next to the subject of mortality saving. The company has assumed a certain death loss and **Mortality Saving.** if the actual mortality is below the expected, a saving will be effected. The importance of this saving may, however, be easily overemphasized. If the company had based its premiums on a mortality table of the general population, the mortality saving might constitute a permanent addition to the surplus, provided it had used care in selecting the persons for insurance. But the tables of mortality now in use are based on the experience of insured lives after the benefit of selection has disappeared. The actual results are therefore likely to approach through a long series of years the calculated results, although by a careful selection of new insurants the actual experience may be kept below the assumed. If, however, a very favorable mortality is experienced for a series of years, this suspended mortality as it is called may become actual mortality later. The important point in this connection is to understand that these claims must be paid and whatever of gain there is to come to the company results, not from writing off the face of the claims, but simply from the added number of premiums the company collects and larger interest accumulations on the sums which continue to draw interest after the time at which it was calculated

they would fall due by death claims. Therefore, it would not seem wise, for a mutual company at least, to consider the total sum as an addition to the surplus for the purpose of distributing it as annual dividends. It is evident that the mortality experience of one year is no criterion by which a company can be guided. The mortality may fluctuate from year to year and hence a part of a large saving in mortality in one year may wisely be retained from the dividends of that year in order to balance a smaller saving in mortality in a later year and so prevent marked decreases in dividends. An examination of the annual mortality experience of most insurance companies will disclose the fact that the actual mortality is less than the calculated.

The third source of the surplus is from loading. If, for example, the net premium has had an addition of 25 per cent made to it for expenses and contingencies which is 20 per cent of the gross premium and only 12 per cent of ^{Savings from Loading.} the gross premium is used, there is a margin of 8 per cent left to accumulate from each year's premiums at compound interest. The word contingencies used in connection with expense has a rather indefinite meaning, but so far as it means an abnormal death rate due, for example, to a plague, it has little importance. It has little more importance so far as it refers to continually unfavorable investments, for as we shall see later the investments are so widely

distributed in respect to regions and kinds of loans, that abnormal returns on the funds as a whole are not likely to be experienced for any considerable number of years.

The discussion of saving from loading is therefore taken as referring to expense. This is a subject of very great importance in the business of life insurance, for in no other business are the evil effects of excessive expense so vital. The desire for new business on the part of strongly competing old companies as well as on the part of the newly formed company seeking to establish itself has been so great that one state has considered it necessary to lay down the limit of expense for new business. In no other commercial enterprise are the evil effects of unregulated competition more clearly shown. The evil effects of abnormal expense do not show themselves immediately after the expenditure, as in most kinds of business and hence the greater fortitude required to resist the temptation to increase rapidly the business of a new company. The new company in the early years will have collected sums far in excess of the death claims, both on account of the excess premiums of those years and the low mortality. No purchaser of insurance, however, should be deluded into thinking either a new or an old company excellent because it has written a large volume of new business, for the amount of new business is

The Importance of Expenses.

in itself no proof of present wisdom or future prosperity. The initial expense of insuring new members is necessarily very large. This expense together with the mortality cost and the required statutory reserve is greater than the premium income for the first year in full reserve companies and frequently is equal and sometimes in excess of the first year's premium even in preliminary term companies.

If sufficient insurance, both as to number of policyholders and amount of insurance, has been obtained so that average results are secured, the policyholders might be satisfied to insure only sufficient lives thereafter to meet the canceled policies. If it is a company selling participating policies only, and average results are being received, there may be no gain by increasing absolutely its membership because the larger membership means that the profits are distributed among a greater number. This may be illustrated by an example from the business world. Suppose A places \$100,000 in a business and secures \$5000 profit but later takes in a partner, B, with \$100,000 capital. At the close of the second year suppose there is \$10,000 profit but A has gained nothing by the partnership. It is true he has given B an opportunity to engage in business, but this is worth nothing to him in a financial sense. Just so an insurance company may take in new members, but this does not

The Significance of new Business.

necessarily mean that the net cost of the insurance to the old policyholder is less.

This point is stated with emphasis for the reason that it has been the subject of much erroneous discussion in these later days of big companies and new companies. We do not overlook the fact that the insurance business is one which in certain respects is subject to the law of decreasing cost. Having an office force, the business can often be increased many per cent without any very great increase in this part of the expense. It is manifestly impossible to lay down hard and fast rules to determine the amount of new business which a company should write. It is absolutely necessary to write sufficient new business to secure average results for the company and to maintain the average results in the old company whose policies are being continually matured by death or otherwise. Quality rather than quantity of new business will, however, be the rule of all good companies. Certainly no obligation rests upon an insurance company to extend its business because it is a means of encouraging thrift, for however important to society the inculcation of thrift is, the insurance company is not primarily a philanthropic organization for the purpose of teaching social morals. It is a business corporation organized chiefly for the profit of its members. The company is to be judged, then, not by the volume of its business, but by the ratio of the

expense to the premiums on the new business acquired. The specific legal requirements regarding expense will be discussed in a later chapter. The surplus, then, arises chiefly from the savings from mortality, the savings from interest, and the savings from the loading.

The subject of lapses in relation to the surplus may be considered at this point on account of its significance in the past when lapsing policyholders were treated with much less liberality than at present. In the earlier days of insurance the policyholder who discontinued the payment of premiums often received no return from the company, regardless of the length of time that he had been paying premiums. In the case of some individuals who lapsed, their past payments produced an addition to the surplus, but the additions from this source were often much less than was commonly believed, and this for two reasons : —

Lapses in
Relation to
Profit.

First, because the better lives were more likely to lapse and hence an increased or unfavorable mortality experience resulted ; second, there was an additional expense of securing a new risk to take the place of the old one, which at the beginning of the contract had the proportionate share of the expense assessed against its premium. Even if the new risk was as good as the lapsed one, the insurance fund would not be the same because two subtractions have been made from it to secure a policyholder. At the present time

profits from lapses are small, owing to the liberal surrender values whether granted voluntarily to the policyholder in his policy by the company or made compulsory by statute. It is understood from the previous discussions that the first year's expenses are necessarily large. The law now requires that a cash sum, based on the reserve value of the policy be paid to the lapsed member, usually after the third policy year, although some companies voluntarily grant such a cash surrender value earlier. Provision has been made, either by the preliminary term plan or some modification of it for the large expense of the first policy year. This was not the case in the earlier years of insurance and hence the gain from lapsed members, numerous as they sometimes were, often was exaggerated in the popular mind.

As a result of the New York insurance investigations, that state enacted a law which limited the amount of surplus which a company could hold. It varies from 20 per cent to 5 per cent of the reserve liabilities, the former being the percentage in the case of smaller companies and the latter referring to companies whose reserve liabilities are over seventy-five millions of dollars. This was done on the ground that a large surplus was a continual temptation for misappropriation or misuse by the officials of the company and also because it was thought that no large surplus need be held for such contingencies as excessive

**The Legal
Limitation of
Surplus.**

mortality or deficient interest earnings. It was argued that the surplus, being the property of the policyholders, should be returned to them either in the form of dividends or lower premiums. This assumes that a large surplus is not an indication of conservative management in the life insurance business. There is not, it is argued, anything in the life insurance business to correspond to a conflagration in the fire insurance business. The only parallel that could be found would be a plague or possibly continued and widespread unprofitable investments, each of which is considered by the law makers a too remote possibility to deserve important consideration. Only such a surplus should be held as is necessary to make possible uniform dividends which the temporary fluctuations in the mortality rate and interest earning might disturb.

After a contingent reserve is set aside out of the general surplus, the remainder may be called dividend surplus or divisible surplus. The **The Divisible Surplus.** dividends are that part of the overcharges

which the officials of the company decide may safely be returned to the policyholders. This fund is sometimes called the profit or interest fund, but it will contribute to a better understanding of insurance if a more careful use of the words is preserved. Profit is the chance element in production and could be properly applied to the life insurance business in two cases. First, in the early days of insurance when,

on account of the high rate of lapses and the terms of the contract, considerable sums were forfeited to the company ; second, when a pure stock company sells nonparticipating policies and by unusually good investments is able to sell insurance at a low net cost and still has a fund to divide among the stock holders.

The profits constitute a fund out of which real dividends are paid. Nor should interest be confused with dividends. Interest is the sum paid by the borrower to the lender for the use of capital. It is a guaranteed return as in the case of bonds, mortgages, collateral loans, or personal security. The policyholder is neither guaranteed an interest nor promised a dividend. He agrees to purchase an article — indemnity — the cost of which cannot be exactly determined at the time of purchase on the condition that any excess payment in the case of a participating policy will be returned to him. In case of a nonparticipating policy the possible excess cost is discounted in the form of a lower premium.

The only sources of income for an insurance company are the present and future premiums from its policyholders and the returns from the investments of the assets which have been accumulated from past premiums. If this income is in excess of the needs of the company, the practical question arises, How shall the overcharges be returned to the policy-

holders? In other words, How shall the company determine the amount of the so-called dividend which shall be paid to each? We assume that the amount which is held for the reserve, and the contingent reserve has already been accurately determined. A question now arises which is not easily decided and one upon which there is much difference of opinion, namely, the distribution of dividends.

In the earlier days of insurance it was the practice to distribute the surplus earnings on the basis of a percentage of the premium without regard to the kind of policy or length of time that the policy had been in force.

**The methods
of Appor-
tioning
Dividends.**

The chief error in this plan was that a policy in its later years received no more than in its earlier years when, as a matter of fact, its large reserve accumulation was contributing annually from its interest earnings a greater sum to the surplus which was being divided. This percentage plan had little to recommend it other than its simplicity, and it was generally superseded by the contribution plan.

This plan is, as its name implies, the method by which it is sought to return to each policy that share in the surplus which it has contributed.

It takes into consideration the kind of policy, its duration, and the age of the insured. A policy is credited for any given year with the terminal reserve of the preceding year, the annual premium of the current year and the interest earned

**The Contri-
bution
Plan.**

therefrom during the year. It is debited with the proportionate share of the expenses of the year which this policy should bear, the mortality cost of the insurance for the year, and the reserve for the end of the year. The difference constitutes the accumulations on this policy. If the total of the amounts so calculated for each policy should exceed the amount which has been set aside for distribution, a pro ratio reduction is made. If the policy has been debited with an \$8 contribution to the annual mortality and the actual mortality is only 75 per cent of the calculated, there is then only \$6 to be paid and the \$2 is that part of the entire surplus contributed by this policy, so far as mortality surplus is concerned. Likewise if 3 per cent is the interest assumed and 5 per cent net is earned, the 2 per cent is a surplus; and if the initial reserve for the year is \$100, this policy will secure \$2 from this source. Similarly, if the loading is \$7 and the actual expense charged to this policy is only \$5, the remaining \$2 will be the surplus from this source. Adding these amounts the policyholder would secure a dividend of \$6.

This method would appear from the description equally as simple as the earlier percentage method and theoretically there seems to be little to criticize in it. However, difficulties are experienced in applying this plan and many modifications of it are made in practice. The chief difficulty centers in attempt-

ing to apportion to each policy for each year of its duration its proper share of the expenses. We have already seen how complex the expenses of an insurance company are, not only because the individual policy expenses vary at different times, being very high when issued and later decreasing, but also because there are so many joint expenses. The idea at the basis of the contribution plan is that no member or class of members should have assessed upon him or them the expense due to any other insured individual or groups of insured individuals, assuming that such sufficient numbers and amounts of insurance have been obtained as will secure average results. However, if cancellations are too numerous, or if numbers have not yet been obtained to secure these average results, should not the present policyholders pay a part of the expense from which they will benefit because they are assured of average results?

It is true that many of the expenses can be identified. The expenses of investments can be discovered and assessed with a reasonable degree of accuracy. The same is true of the medical examination, the agency fees, rent, and supplies. The salary of officials, clerks, and office expenses, also, have some relation to the amount of business done. But assuming these last-named expenses at a given amount when a given volume of business has been transacted, it does not follow that a business of double this volume would require a doubling

Difficulty of
assessing
Expenses.

of these expenses. Nor do such expenses as advertising and postage bear any necessary relation to the business transacted. The expenses due to settlement of policies often vary greatly. The same is true of taxes which vary greatly in different taxing districts. If one state levies a tax of $2\frac{1}{2}$ per cent and another state a tax of 1 per cent on the premiums collected in the state, should the policyholders in the latter state help to pay the tax in the former state? Theoretically they should not, but practically it is impossible to assess the tax on the policyholder in the former state in the form of a higher premium.

The difficulty, then, of determining accurately individual policy expenses is apparent and in practice the companies are forced to group some of these expenses and assess them upon the premium or upon the death cost. Mr. Daniel H. Wells, the actuary of the Connecticut Mutual Insurance Company has advanced the following plan for assessing expenses : (a) assess the investment expense upon the investment income ; (b) assess upon the premiums such expenses as are determined by the premium ; (c) assess upon the death cost or technically the cost of insurance all other expenses. This plan has the merit of definiteness, but it does not guarantee that the various expenses will be properly identified and assigned to the proper place. This plan would imply that the expense of securing new business would be borne *in toto* by the new members which could be done only on a

preliminary term plan or its equivalent. The old line companies which set aside a full reserve from the start must borrow from the surplus to pay initial expenses.

The public has become supersensitive and often unfair in its criticisms of the conduct of the insurance business within recent years because the management of such business has not upon demand come forth with hard and fast rules for determining each element in the expense of conducting the business. If the same demand had been made of the management of most private enterprises, the reply would have been almost equally unsatisfactory. None the less it is important in the business of such a quasi public character as the insurance business that plans as definite as possible for determining expenses be devised and followed. Absolute definiteness cannot be secured for the best devised principles for assessing insurance expense will meet many difficulties when the attempt is made to apply them.

The annual dividend plan of paying dividends is now the general method with companies that write participating policies. The dividends accruing may be used by the policyholder to reduce the premium, to purchase additional insurance, as a deposit with interest, as a cash payment, or in several other ways frequently found in life insurance policies.

The deferred dividend plan was extensively used previous to the legislation which followed the insur-

ance investigations of 1905. This plan provided that no dividend would be paid until the close of certain periods, usually 5, 10, 15 or 20 years. Such policies were often called accumulation, distribution, or semitontine policies. The theory underlying this plan was that it tended to security since an interval of this length would be a safer basis on which to determine the real gains than would a year, and second, that the persisting policyholder was more entitled to whatever gain resulted rather than the policyholder who lapsed, but who under an annual dividend plan enjoyed a reduction in his insurance cost by receiving the annual dividend. It is evident that under the deferred dividend plan the company holds large sums, and this condition theoretically not only insures a greater guarantee of solvency, but also by its compound interest accumulations and wise investments returns to the surviving policyholder a large amount of so-called dividends. In practice, however, these expected greater results were not always obtained. It was found that these large funds were a continual temptation for extravagant expenditures by the management of some companies. No accounting to the policyholders for this sum was necessary until the close of the period and in the strong competition for business the management of some companies depleted this fund. Then, too, the agents of the companies often made extravagant statements and

**Deferred
Dividend
Plan.**

promises to prospective purchasers of policies regarding the amount which they might expect these deferred dividends to be. The policy contract did not guarantee any specified dividend and when the time for distribution came, many policyholders were disappointed because their dividends were much smaller than they had been led to believe they would be. Some companies issued estimates of dividends, but these were not always accepted by the public as estimates. Doubtless many officials and agents were sincere in thinking that the company would be able to pay the sums indicated in the estimates, but they made the mistake of assuming that the interest rate would continue as high in the future as it had been in the past, and the further mistake of assuming a heavier lapse rate than actually occurred. Many policyholders consequently believed that they had been intentionally deceived, as doubtless some were, and they expressed their demand to the state legislatures, which enacted the annual distribution laws.

The tontine plan has long ceased to be of any great importance. The pure tontine plan was one by which the lapsing policyholder received neither dividends during duration of insurance nor cash surrender at the time of lapse. The total contributions and their earnings were divided at the close of a period among the members who persisted. This plan became illegal in time

The Tontine Plan.

and gave way to the semitontine and other plans of deferred dividends.

The annual dividend plan affords a method of securing the insurance at an immediate and continuous

**The Annual
Dividend
Plan.**

lower cost, and since insurance is primarily a protection and not an investment, the plan will probably prove more and more popular as the purchasers of insurance come to understand better this plan of paying dividends. This statement does not imply that for the same policy at the same age the annual dividend plan has resulted in a lower net payment for the insurance than on the deferred dividend plan, since the company might have been able to keep what has been paid in annual dividends so invested that it would have earned a larger sum in their possession than when it was invested by the policyholder. Indeed, when considered individually, the chances of securing a better investment of this dividend sum by the company are decidedly more favorable than when it is invested by the average policyholder.

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CHAPTER IX

INVESTMENTS AND INTEREST

ONE of the most difficult problems in the practical operation of a life insurance company is the management and investment of insurance funds. The importance of this subject is due chiefly to the fact that these funds are advanced collections from the policyholders to aid in the payment of claims which will not fall due for many years. The contract made by the company is with one person, but the benefit is usually paid to another person. It is this reserve fund which guarantees the payment at maturity of these long time contracts in which several parties are interested and whose payment means so much to the beneficiaries. The calamity which would result if all the insurance companies should default their contracts is beyond imagination. From the previous discussions, it will be understood that the assets must be at all times so invested as to equal at least the reserve value of the policies, for this is not only a requirement of the statutes, but, as we have seen, is also absolutely necessary under the level premium plan in order to mature the contracts. In addition those companies

The Importance of Investments.

which pay dividends expect to secure from their investments a part of the surplus from which dividends are paid. So large in amount have these funds become and such great financial ability is required for their wise management, that this problem may well be considered one of the most difficult in the insurance business. We will discuss the subject of investments under the following heads: (a) the character of the investments in the past and present; (b) the rate of interest secured on the different kinds of investments at different periods. The topic of the legal requirements in regard to investments is reserved for a detailed discussion in a later chapter.

An investigation of the investments of life insurance companies in the past shows that in 1851 the Connecticut Mutual Life Insurance Company and the Mutual Benefit Life Insurance Company of New Jersey, which are two of the oldest and may be taken as representative companies, had 56 per cent of their assets invested in premium notes, that is, notes given by the insured for premiums due. Of the other assets derived from cash payments held at that date 26 per cent was in real estate, about 9 per cent of the remainder was in city bonds and bank stocks, and about 9 per cent was held as cash. A very marked decrease in premium notes then followed, so that in 1858 only 21 per cent of the assets of the four largest companies was in the form of premium notes. Of the remaining 79 per

The Character of the Investments.

cent of the assets about 67 per cent was in mortgage notes.

The cash item as a relative percentage did not among companies as a whole show any marked tendency to decrease preceding 1905. Cash ^{The Cash} held in the office has constituted a temp- ^{Item.} tation which the management of some companies has not been able to resist, as the insurance investigations begun in 1905 disclosed. The cash item in theory should consist of money held to pay matured policy claims falling due whether these be death claims, endowment claims, annuity claims, or cash surrender values; money held for current expenses and cash awaiting investments. Insurance officials are not always able to find immediate investments of a desirable character. There has been a tendency in some cases to hold an unduly large amount of cash which went to the call loan market. As is well known, the interest rate on these loans is often very high, but the risk is also often great. Security should be the first criterion of judging the excellence of an insurance investment rather than the high rate of return secured. It is desirable, of course, to secure high interest returns, since this may result in greater dividends and lower premiums to the policyholder, but the fundamental question is to decide how high a rate of interest can be secured consistent with the security of the investment. It was shown in the recent investigations that as high as 20 per cent of the

funds of some companies was deposited in banks and trust companies. In some cases the officials of the insurance company were officials or directors of the bank and trust companies. This situation would seem a very natural condition of affairs when it is recalled that the insurance company has large funds to loan and that the bank and trust companies are institutions for making loans. This dual relationship, however, often placed the insurance official in a position in which there was a conflict of interests. As an insurance official, he should desire to secure as much interest as possible for the insurance fund. As a bank or trust company official, he would be interested in having the insurance company keep as much cash as possible in the bank or trust company without it bearing interest. Then, too, we shall see that the field of desirable loans for insurance funds is much more restricted than in the case of these other two financial institutions. There is, therefore, a constant temptation to make loans of the less suitable kind.

In 1860 a large part of the assets of life insurance companies was in notes, given for premiums. In

**Premium
Notes and
Policy Loans.** 1870 of the seventy-one companies doing business in Massachusetts there were twenty-three which did not hold interest bearing securities equal to the reserve value of the outstanding policies. When the panic of 1873 occurred, many of these companies failed, partly because these premium notes became worthless and

partly on account of the high and strict reserve valuations required by some of the state laws. Others reduced the number of premium notes. It is now the practice to collect the premiums, then loan on policyholders' notes up to the reserve value of the policy. A very common method of paying a premium due is for the policyholder to borrow from the company on his policy. This is debited against the policy, and since the loan is based on the reserve value of the policy, there is no such danger as in the earlier plan of premium notes. Loans, of course, are secured on the policy for other purposes than paying the premium. Premium notes are valuable as assets only to the extent that they are covered by the reserve value of the policy, since the company is relieved to this extent of its obligations to the policyholder.

The other questions which arise in connection with loans are (a) to what extent loans on policies are conducive to lapses, and (b) the effect that they have in requiring the company to **Danger of Policy Loans.** keep on hand a larger amount of cash than would otherwise be necessary, thereby preventing an interest accumulation from these uninvested funds. It is true that in the seventies a large number of policyholders who had given premium notes lapsed, but evidence is not conclusive that the plan of loans now followed is conducive to lapses. It is *not* so much that they cause lapses, but rather that they often go

far to defeat the purpose of insurance and therefore the ultimate effect is much the same as if the policyholder had lapsed. The ease with which a loan is secured on a policy is often a great temptation to many policyholders, with the result that the insurance loan is devoted to speculative enterprises. The wife or children or other dependents for whose benefit the insurance is carried sometimes know nothing about these loans, and as a consequence they find in case of the death of the insured that they have less protection than they expected. The companies may or may not make efforts to secure the payment of the loan, but too often the policyholder has not the will to pay it even when he is able to do so. There is no one to compel him to pay it, as is the case with the ordinary loan. The policy loan provision is largely an outgrowth of the strong competition among companies for business, and this provision was written into the contract as an inducement for the prospective purchaser to buy insurance.

As to the second point, viz. that the loan feature requires companies to keep a larger amount of cash, **Policy Loans and Solvency of the Company.** it may be stated that these loans place a strain on the company at certain times. That is to say, the demand for loans is greatest in times of industrial depression and in periods of speculation. If the increased demand occurs in the first period, the company is likely to be receiving less in cash payments for premiums due.

If, therefore, it is forced to sell some of its securities, it will not receive a good price for them, or if it is forced to borrow funds to accommodate its policyholders under the terms of the contract, the rate of interest which it will be forced to pay is high. If the increased demand comes at times of speculative activity, there is great danger that the investment made by the policyholder from the loan on his policy will be unfortunate and he will therefore be less able to repay the loan as well as the future premiums. During the financial depression of 1907 many policyholders took advantage of the loan benefit in their policy and borrowed very large sums in the aggregate from the companies. While the companies met these demands with commendable promptness, yet to some of the companies it became a troublesome question. On account of their experience at this time, some of the companies seek to protect themselves by requiring that a notice shall be given to the company when a loan is desired in much the same manner as is done in the case of depositors in Savings Banks. This restriction will doubtless do much to protect the company, but it is not an absolute protection against the loan question becoming a serious one. When the loan is made to pay premiums, it is in its least objectionable form. It may be stated as a superficial reply to the whole question of loans that the reserve is the policyholder's property and that he ought to be allowed to use it as he pleases. A

moment's consideration will, however, disclose the fallacy of such a statement, since, carried to its logical conclusions, it would mean that there would be no such a person as a beneficiary. It is above all for such a person or persons that the institution of insurance was devised. The insurer cannot, from one point of view benefit by his insurance. The significance of the subject may be inferred from the fact that in 1908 the loans made to policyholders by the Life Insurance Companies in the United States aggregated about \$400,000,000, or about 13 per cent of the total admitted assets.

In 1860 loans on mortgages made up 59 per cent of the assets, but this proportion had decreased to 44 per cent in 1870. During the Civil War the United States bonds could be purchased so as to yield a high rate of interest, and insurance companies very largely followed the practice of investing all their available funds in these bonds. It must be recalled that corporation securities which were later available in such desirable quantities were not to be had to any large extent until in the last quarter of the nineteenth century. When the premium on gold began to decrease and the interest on the United States bonds declined, the insurance companies began to seek mortgage loans. The middle west during the third quarter of the century sought large amounts of capital for the construction of its railways and the general

development of the region. Interest rates were high and large amounts of insurance funds were invested in the west. Mortgage loans increased rapidly from about 1865 to 1875 and then decreased until about 1885. The panic of 1873 forced the insurance companies to foreclose many of their mortgages, with the result that they found themselves in possession of considerable real estate. This was a species of property not suitable for possession by an insurance company since the expenses of management are not only excessive but these assets are not easily convertible.

The real estate investments of an insurance company are usually limited by law to a Home Office building in which to transact its business.

Usually the law requires that the property ^{Real Estate.} obtained by foreclosure must be sold within two years. We have shown why the company does not want to retain, unless necessary, the second kind of real estate. All companies do not own their office buildings. Many rent office space. However, there was a very marked tendency as the companies grew in size to construct their own office buildings. This policy, it was argued, would be a good advertisement for the company and as a result many of the companies spent profusely for the construction of office buildings. Nor was the policy confined to the large companies. Later investigation showed that in many cases no adequate

financial return was secured on these office buildings and in some cases misappropriation of funds was disclosed by permitting allied trust companies to use parts of the buildings at a nominal rent. Since 1905 the office buildings are showing better returns, and in several cases the branch offices of the larger companies have been sold.

Foreign bonds have been purchased only by those companies writing business in foreign countries in **Government Bonds.** which the law requires such an investment. The early insurance companies invested considerable funds in the bonds of the different states during the period from 1835 to 1855. Many of the states were undertaking vast schemes of internal development, such as the construction of canals, railways, and roads. On account of the demands of the rapidly growing states of the middle west and south, state bonds were very numerous. However, some of the states repudiated their debts, and considerable sentiment favored the same policy in other states. This caused the state bonds to become unfavorable securities. Since 1865 state bonds have not been numerous. City expenditures began to increase very rapidly after the Civil War, for the rapidly increasing urban population demanded many improvements in the cities. In 1880 about 15 per cent of the insurance companies' assets were invested in city bonds. Some cities attempted to repudiate their debts and in many cases great difficulty was

experienced with these investments in city bonds. As a result the insurance companies did not for some time seek these investments. State legislatures either of their own volition or as a result of a request from the cities were continually legislating on the subject of the city tax rate and the power of the city to contract debts. There is a tendency in later years, however, for the companies to seek again this form of a loan, for the security of city bonds has improved.

A very great increase in the investments in corporation securities occurred in the last quarter of the nineteenth century, and especially since 1890. Both stock and bonds were purchased, although the investigations of the insurance business in 1905 resulted in the passage of laws by various states which either wholly prohibited or limited insurance investments in stocks. The objections to investments in stocks are twofold: (a) A stockholder is a participant in the management of the corporation whose stock he holds and manifestly such a function is not desirable for an insurance company. The insurance company thus becomes more than what the theory underlying its organization assumes that it is. That is to say, it becomes more than a trustee. It becomes a manager or a partner in a private business. (b) In the second place stocks fluctuate greatly in value, thus causing the question of the solvency of the insurance company or its ability to pay dividends

**Investments
in Corpora-
tion Securi-
ties.**

to arise continually with every change in the success of the commercial enterprises in which the funds are invested. The two most fundamental words in the insurance business, the two most pregnant with the purpose and theory of insurance, are certainty and stability.

In 1908 the statistics of the ordinary life insurance companies showed that they owned over one billion **Investments** dollars of bonds and almost one billion of **in Stocks.** loans and mortgages. The amount of stocks held was only \$133,000,000. The New York law required, as a result of the investigations, that the companies should dispose of their stocks. This was done on the theory that the holding of stocks would be a continual temptation to the insurance officials to organize and finance new companies from which they as individuals would gain. It was not desirable, so it was argued, for insurance officials to loan money to themselves as officials of other commercial corporations. This meant that the insurance funds were to be considered as trust funds, and as such were to be protected by every possible safeguard in order to insure that the funds should be kept intact even if only a low rate of interest was earned. It is quite true that the net return on stocks is often higher than on bonds, since the interest paid on bonds is subject to the fluctuating purchasing power of money and the loss falls on the bondholder while in the case of stocks the loss may

be recouped by an increase in the selling value of the stock. The following table taken from that valuable source of insurance statistics, the Year Book of the Spectator Company, is given to indicate the present character of the insurance investments. It will be understood that in the case of individual companies the characteristics of the investments differ very widely. For example, one of the older companies of the middle west has had throughout its history a very large part of its assets invested in mortgages on real estate and has been able to receive throughout its history excellent results on this class of investments.

The following table shows the approximate distribution of the investments of one hundred and seventy-three life insurance companies' admitted assets.

Total admitted assets . .	\$3,000,000,000	
Invested in real estate . . .	125,000,000	4.04 per cent
Invested in loans and mortgages	913,000,000	29.60 per cent
Invested in loans	1,354,000,000	43.88 per cent
Invested in stocks	131,000,000	4.24 per cent
Invested in collateral loans .	15,000,000	.48 per cent
Invested in premium notes .	25,000,000	.79 per cent
Invested in loans to policyholders	394,000,000	12.76 per cent
Cash in office and banks . .	53,000,000	1.73 per cent

Let us now examine the rate of interest which the companies assumed they would earn and then investigate the actual rates of interest earned. In the

earlier practice of insurance the ordinary life policy was most generally written and the average rate of interest earned was not so important as when endowment and limited payment policies came to be written, because these early policies had no provisions for cash surrender and loan values or annual dividends, and a failure to pay premiums usually forfeited the policy. There were considerable gains from lapses. When state supervision began in the fifties, some rate of interest earnings had to be assumed in order to value the policies. Elizur Wright, the insurance commissioner of Massachusetts secured the passage of a law in that state in 1857 which required the companies to assume a 4 per cent interest earning as a basis of computing their liabilities. Georgia established the same basis in 1859, but no other state adopted a basis until after the Civil War. The action of these states had, however, caused most of the companies to adopt the 4 per cent basis of valuation. In 1862 eleven of the seventeen companies doing a level premium business were on a 4 per cent basis, three on a 5 per cent basis and one on a 6 per cent basis. The high interest rates of the Civil War period caused New York in 1866, to pass a law requiring a 5 per cent basis, but this was lowered to $4\frac{1}{2}$ per cent two years later. In 1873 Maine, New Hampshire, Connecticut, and Illinois required a 4 per cent basis and fifteen other states required a $4\frac{1}{2}$ per cent basis. The hard times

**Assumed
Interest
Earnings.**

of this period caused a decided tendency to assume a 4 per cent basis, but very few insurance officials thought that a lower rate would be necessary for some years. The Connecticut Mutual Company announced, to the surprise of the insurance world, that beginning with 1882 its new business would be written on a $3\frac{1}{2}$ per cent basis, but no state required a $3\frac{1}{2}$ per cent basis before January 1, 1901. At the present time practically all business is written either on a $3\frac{1}{2}$ per cent or 3 per cent basis.

Such has been the history of the different rates of interest earning assumed. What has been the history of the actual interest rate earned? **Actual Interest Earnings.** In 1859 seven level premium companies were earning from 5.4 per cent to 6.4 per cent. In 1861 eleven companies earned a rate below 6 per cent, but on account of the high interest rates of the Civil War period the decade from 1860 to 1870 shows the highest rate of earning of any decade in the history of insurance. Eleven companies earned above 10 per cent, seventeen earned between 9 per cent and 10 per cent, twenty-four between 8 per cent and 9 per cent, thirty-seven between 7 per cent and 8 per cent, and forty between 6 per cent and 7 per cent. On account of the hard times, the large number of premium notes and other minor contributing causes, many companies failed in the decade 1870 to 1880, although the average earning of all companies was above $6\frac{1}{2}$ per cent. This resulted, however, from the

very high earnings of a few companies. After 1880 the decline in average earnings began and no company maintained a level earning of 6 per cent. During the decade 1890 to 1900 the average rate of earnings for most companies was below 6 per cent. Only two companies maintained a level rate of 5 per cent. During the years 1899 to 1908 inclusive, the average rate of interest earned by the twenty-five leading companies was 4.68 per cent.

The earnings on particular classes of investments may be briefly described. The earnings on real

Earnings on Specified Investments. estate were fair during the sixties but decreased during the next decade. In the

decade from 1890 to 1900 the earnings on real estate were on an average below 3 per cent in many of the companies. During the latter part of the decade from 1900 to 1910 the earnings on real estate have greatly improved as a result of the great increase in real estate values. The laws of some states do not permit insurance companies to hold real estate except for office building purposes. During the years from 1860 to 1880 the earnings on mortgage loans were in general very satisfactory, but during the next two decades the earnings on loans of this character were much less. A few companies have been able to secure almost continuously satisfactory results from mortgage loans. We have previously described why the investment in government bonds brought high returns during Civil War

times and why the insurance companies tended to reduce their investments in these securities. In the last quarter of the nineteenth century very large investments were made in the stocks of railroad and industrial corporations, but for the reasons already stated the investments in stock have been so reduced that in 1908 only 4.61 per cent of the total assets of the one hundred and fifty-seven life companies was invested in stocks.

The laws of the states restrict the kinds of investments open to insurance companies. No specific rules can be laid down for the investment of insurance funds, which will be applicable to all companies or even to a single company at all times. It is a matter which must be adjusted to suit the changing conditions of the investment market. Those in charge of the finances of insurance companies must regard not only the interest of present policyholders, but must also anticipate the interest of the policyholders of the future. Subject to certain special conditions the following principles may be stated as applying to the investment of insurance funds: (a) The funds should be so invested that they will be subject to the least possible fluctuations in their value. Stable results for obvious reasons must be secured. (b) Subject to the above limitation the investments should be such as will bring the highest possible returns, for this means lower cost of insurance to the

**Principles
governing
Investments
of Insurance
Funds.**

policyholder from whom the funds have been collected. (c) The larger proportion of the funds should be invested in long time securities, since this not only reduces the expense of investments, but also is likely to produce better returns over long periods, because the supply of capital seeking such investments is somewhat limited. That is to say, the competition for such investments is not great, and this tends to produce a higher interest rate. (d) The funds should be invested in sufficiently different classes of securities to prevent any marked decrease in earning due to unfavorable conditions which may affect a certain business from time to time. Deficiencies in one class of investments will then tend to be equalized by excesses on other classes of investments. (e) Investment in securities of corporations or in kinds of business, the earnings on which may be decidedly affected by a change in the policy of the management or by the death of a partner should generally be avoided. (f) While mortgage investments have often been successful, yet great care needs to be exercised in making them in order to keep the loan on the property well within the fluctuating values of the property. Investigations must also be made as to the title of the property, the rate of taxation, and the character of the possession, that is, whether it is absolute ownership or a life estate. It is not surprising, therefore, to find that the expense rates of investments of this character are

sometimes high. (g) From the viewpoint of the company a certain amount loaned on policies may be desirable, since they are absolutely safe loans, and return the normal rate of interest. They also make the company's policies more popular and aid in securing new policies. From the viewpoint of the borrower such loans are not to be commended except in cases of extreme necessity.

Those in charge of the investments of insurance funds must always remember that they are acting in the capacity of trustees ; that while they need to be aggressive in their search for investments returning a high rate of interest, yet that the maintenance of stable results by obtaining secure investments is the most important consideration.

We may now discuss the topic of buying insurance, since the intelligent purchase of insurance must be based upon an understanding of the different kinds of companies, policies, and premium, the significance of dividends and the reserve as well as the character of insurance investments. Each of these topics has been discussed, and although some of the following points might have been taken up in the preceding chapters, yet it has been thought best to defer them for discussion under the topic of buying insurance.

The prospective purchaser must realize in the first place that insurance is not and cannot be made primarily an investment in the sense in which this word

is ordinarily used. It cannot be considered an investment in the same sense as the purchase of a farm or a bond. If an allowance is made for the protection afforded, some policies may be considered as an investment, but not as a true competitor with the ordinary investment. They afford an opportunity for systematized saving and thus whatever of the character of an investment they have is indirect rather than direct in its returns. The purchaser must decide first the kind of a company from which he will purchase his insurance; that is, he must decide between an old line legal reserve company, a fraternal, and an assessment company. His decision will depend very largely upon whether he appreciates the importance of the reserve in the insurance business. If he does understand its character, he will purchase his insurance either from one of the ordinary legal reserve companies or from a fraternal order which operates on the reserve plan. This assumes, and purposely so, that no individual in a normal physical condition with honest intentions and possessing an understanding of insurance will purchase a policy in a company which operates on the old plan of assessmentism. This strong statement, that the purchaser of insurance on the assessment plan is either ignorant or dishonest, may seem harsh, but we believe the facts warrant the statement.

In selecting the kind of policy, whether whole life,

limited payment life, endowment, or term, the purchaser will be governed by many considerations, among which may be mentioned the extent of his obligations, the amount and character of his present and prospective income, and his age. The man with a family of six children needs more insurance than the man with three children, and the man with an income of \$5000 a year can purchase either more insurance or the more expensive policies than a man with an income of \$2000 a year.

It must be recognized that there is no such a thing as an absolutely best policy, no more so than there is an absolutely best company. It must also be understood that what is the best policy for the buyer at the time of the purchase may not be the best twenty years later, when his family position is different. The change in the relations of a man to his obligations and the difference in his ability at later periods to meet them make it absolutely impossible to select a policy that is certain to be throughout its length the absolute best for him. For this reason those policies which permit change in the beneficiary and the terms of settlement commend themselves to many buyers.

The ordinary life policy is not held in great favor and most of the insurance now in force is on the limited payment life and endowment plans. This lack of appreciation of the ordinary life policy is

unfortunate, but the insurance officials and not the public are largely responsible for this condition. In the early days of insurance, when this policy was the one usually purchased, the companies were led, as we have seen, to make promises of large dividends, which were never realized. Many policyholders were forced to lapse their policies. In the second place, the plan of paying commissions on the percentage plan, especially since the larger commissions were given for other forms of policies, caused the life policies to be neglected. In the third place the absence of saving banks and other saving institutions in many localities caused the purchasers of insurance to select the endowment and limited payment policy with higher premiums than the whole life policy because they served as a method of saving.

The ordinary life policy on account of its low premium recommends itself to at least two fairly well defined classes : (a) those receiving relatively small incomes ; (b) those who receive moderate but certain incomes during the productive years of their lives and who have large family obligations. They are able on account of the low premium to carry a large amount of insurance during the period of dependency of the children and beyond this period the premiums may either be paid in part by the children or the policies surrendered or changed to paid up insurance, assuming that the policyholder is not financially able to keep up the

**Advantages
of the Ordinary Life
Policy.**

payments. The ordinary life policy of a present-day insurance company has so many privileges in the contract and is so excellent as to its general character that it is a great misfortune, both to the public and the insurance business, that it is not more frequently sold. There is some evidence, however, that this policy will become more popular, as the public and the insurance officials become divorced from the idea that insurance is an investment.

The limited payment life policies commend themselves to those individuals who desire their premium payment period to be confined well within their productive years. This policy will appeal to the young man who is uncertain of an income after a given period or who does not wish insurance to be a part of his annual expenses after middle life. Out of the relatively large and certain income of his early productive years, he pays for his insurance. He has the satisfaction of realizing that he has purchased and paid for the protection which his family has a right to expect from him. This policy is also often selected by the man of middle age who has previously neglected to purchase protection, but who wishes then to buy it and pay for it while he is yet a producer. The ordinary life policy premium may cause an undue pressure on the decreasing income of his declining productivity. The length of the premium paying period, that is, whether a 10, 15, 20 or 30 year life payment policy

**Advantages
of the
Limited
Payment
Policies.**

is selected, will be determined by the prospect of his years of productivity. The man of 45 years of age can purchase a ten payment policy and thus complete his payments well within his productive years. The young man of 25 years of age, receiving a salary which will probably decrease rapidly after 45, can purchase a twenty payment policy at a rate not greatly in excess of the ordinary life policy premium and complete his payments before his salary decreases.

The endowment policies commend themselves to those who desire to have in addition to the protection
Advantages of the Endowment Policies. a material incentive to save. The premiums are considerably higher than those in the other policies for the reasons discussed in a previous chapter. They not only afford a means of saving for the young man or woman, but they also mature at a time when the individual, as a result of his larger business experience, is often better able to make profitable investments of large funds. If past investments have been wisely made from other savings and the individual does not need the face of the policy for current use, he may purchase a considerable amount of paid up insurance because his insurance premiums have been large. Again this policy has larger loan values than any other policy, and this sometimes becomes an advantage for the young person. The argument that the individual could secure a better return if he would invest his savings in a savings institution, organized for that purpose, is more

interesting than true, for the average individual will not save regularly unless under pressure. No one compels him to go to the savings bank to make his deposits and no one prevents him from withdrawing them at his pleasure.

The term policy can be recommended only as a temporary expedient. It is no cheaper than any other form of insurance, but since the immediate outlay is small, it commends itself to those who incur temporary obligations

**Advantages
of the Term
Policies.**

or to the man with the family whose present financial condition will not permit of larger outlays for insurance, but whose financial condition in the near future will permit a transfer to one of the other kinds of policies.

After deciding the kind of a policy which he needs, the prospective purchaser must select a company, and this is a selection which is doubtless made with the least intelligence because the

**Selecting a
Company.**

average person does not know how to compare companies and the average insurance agent does not make a practice of advertising the good points of companies other than the one whose policies he sells. The prospective purchaser should examine the annual reports of the companies, the annual statements made to his state insurance department and the gain and loss exhibit, if the latter is available. From these sources he will secure information on the following subjects: (a) The character of the investments,

that is, in what manner the insurance funds are secured and what they are earning; (*b*) the liabilities of the company and the relation of the assets to it; (*c*) the expenses, that is, how much money is being spent to maintain the company a going concern and how much money is spent to secure new business; (*d*) the ratio of actual to calculated mortality; (*e*) the number of lapses; (*f*) the amount of the surplus and the manner of its division, that is, how much is retained, how much is paid to policyholders as dividends, and how much to stockholders, if it is a stock company.

It will also be advisable for the intending purchaser to ask the companies in which he is interested or the agents to supply him with a statement of the dividends paid on policies of the kind which he desires. This statement should show the dividends paid for the past several years, for manifestly one year's dividends are not sufficient to determine a fair judgment. He will not lay too much stress on dividends as a criterion for comparing companies because a good policy has many other important characteristics besides good dividends. If the purchaser is seeking to compare participating with nonparticipating policies, he will need to be careful, lest he make false conclusions in regard to apparent cheapness. The dividend scale on the particular policy of the participating company will aid in comparison. That is, he can

Judging a
Company by
its Divi-
dends.

deduct it from the premium and compare the result with the premium of the nonparticipating company. However, this is not conclusive proof. He must ask himself what return he could secure for himself on these small annual sums which represent dividends paid to him by the participating company or not collected from him by the nonparticipating company. He must understand that the nonparticipating premium includes a loading, but not the same degree of loading as does the participating premium. Possibly some participating company can secure for him accumulations which in the end will make his participating policy quite as cheap as his nonparticipating policy. It is not sought in these statements to make any claims of advantages for either one or the other kind of policy, but rather to encourage the purchaser to make a careful investigation in order that he may secure that policy which is best suited to his needs.

After the prospective purchaser has informed himself on these points, he will then make a comparison of the terms of the contract of different companies. This problem has been solved **Comparing the Contract.** in part for him by the enactment of the standard provision laws which require all policies to contain certain provisions, which have been discussed in a previous chapter. There remains, however, some points of difference in the policies of different companies.

He will examine the options in settlement, both upon maturing and lapsing the policy; the restrictions of the

policies; the terms or conditions of loans; the freedom with which he may change to other forms of policies and change the beneficiary. He will also examine the guaranteed values, if any, on the different policies. He may also give some weight to the character of the representatives of the companies who solicit his insurance, for a good insurance company will not knowingly keep in its employment a dishonest representative. After he has made all these examinations and comparisons, the purchaser of insurance should complete the task by acquainting himself thoroughly with the terms of his contract. Every sentence deserves careful study, and he owes it to himself, his family, and society to make himself an intelligent holder of insurance in order that he may fulfill his part of the contract, secure the protection for his family, and become an interpreter to and missionary for the uninsured.

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CHAPTER X

THE RELATION OF THE STATE TO INSURANCE

WE have seen from the previous description of the character of insurance and the methods of its sale that it is a business which must concern it- **The Theory of the State Regulation of Insurance.** It demands an agreement between sellers and buyers of a valuable thing—indemnity—in which the terms of the sale are frequently misunderstood. It demands the association of individuals in order to secure a thing which no one could secure for himself. It is a coöperation among many in which a general interest is present, but in which also an individual or a group of individuals may seek to benefit at the expense of the many. The contracts which are made run for long periods of time and the settlements for which they provide cannot be enforced in most cases by the original party to the contract, but must rest either upon the good faith of the other party or upon the compulsion of a third party—the state.

Since the obligations of an insurance company are chiefly in the future, errors due to ignorance or dishonesty do not immediately disclose themselves. The policyholder cannot usually withdraw without loss to himself. The business of insurance, both on

account of the difficulty in comprehending the principles underlying it and also on account of the complexity of its actual transaction, is such that the average policyholder cannot determine for himself the soundness of the company. Even if he should discover evils in its operation, he usually neither knows how to correct them nor how to protect himself. The business of insurance is almost wholly conducted with the funds of the policyholder who receives for his payments a simple promise to pay a sum at some future time.

There would therefore seem to be good reasons for the activity of the state in order that the principles of justness and equity may be preserved. The state should not only protect the weak against the unjust activity of the strong, but it should also prohibit large numbers of its citizens from doing an injury to themselves. In this last mentioned capacity, it should, for example, prohibit a group of individuals from organizing themselves into a body to do a thing which past experience has shown to be impossible. The state is particularly interested in compelling contracts to be carried out and since the insurance contract involves rights and benefits beyond the lifetime of one party to the contract, it finds an important sphere of action in the insurance business. It is also inevitable when a business has to do with so many persons, as does insurance, that some of these persons will at times attempt to practice fraud on the group, and this

practice the state must seek to prohibit. Although insurance is a business in which many are necessarily interested, its very character precludes the many from having any direct part in the actual conduct of the business, and it is therefore incumbent upon the state to do what it can to protect the many against the possible carelessness, ignorance, or dishonesty of some officials of the companies.

It is coming to be more clearly recognized that the state amidst the present-day complexity of commercial activities and the intricacies of modern business organization cannot depend upon publicity and competition to secure protection to its citizens. If publicity simply means informing the public of what an organization is doing, the state defaults its duty to its citizens by this negative approval of the thing done and leaves in many cases but an incomplete means of redress, and in other cases none to its citizens. While the old recipe of competition has secured some very good results in the insurance business, especially in the liberalizing of the policy contract, yet it has failed in many other respects. Indeed, the excessive competition for business among some companies has led to extravagant expenditures, discriminations, and other well-marked evils until we have felt the need of protection against the evils of competition rather than incentives to greater competition.

Since the state is responsible for the existence of corporations and since the rights granted to insurance

corporations lead to the creation of trust funds, it follows that the state must see to it that these sacred obligations are met by the creature which it has called into existence — the corporation. At the time of the adoption of the Constitution and for many years later, the general principle of little government interference in industry was followed. Few evils, so far as insurance was concerned, resulted, for, as we have seen, little of insurance was transacted until after 1835.

Whatever supervision there was of the insurance business was at first primarily for the purpose of obtaining a basis for raising revenue, and this, it may be added, is still an important reason for supervision. In the licensing of companies and the prevention of fraudulent companies from operating within a state, the interest of policyholders was probably of secondary importance. In time, however, as the business grew in size and complexity, there was a growing realization that the state must take a more active part in regulating a business which affected so large a number of people. In addition, there had been organized many companies of a fraudulent character between the years 1825 and 1850 or, if not fraudulent, organizations which operated upon the unscientific plan of assessmentism. The evils which resulted from the operation of these companies were probably the most direct cause for the demand to arise, that the business of insurance

**Character of
the Regula-
tion before
1855.**

be more closely supervised by the state. Previous to 1855 the state had been satisfied to lay down in general laws the terms under which an insurance company could be organized and operated. No detailed reports were required to be filed and no reserves to be maintained.

Massachusetts was the first state to establish a state insurance department. This was done in 1855, and the action of Massachusetts was followed by New York in 1859, by Connecticut in 1865, by Ohio in 1867, and by Michigan in 1871. Every state in the

Establish-
ment of State
Departments
of Insur-
ance.

Union now supervises the insurance business, although in some states the department is only a separate bureau under the direction of some other department of state. Where there is no separate department, the work is usually placed under the charge of the auditor, treasurer, or secretary of state.

The departments or bureaus are supported by fees and taxes collected from the insurance companies, but the amount of funds collected bears no definite relation to the cost of maintaining the department.

Although Massachusetts established her insurance department in 1855, no standards of solvency were required until 1861. No other state es-

How the
State Regu-
lates Insur-
ance.

established such standards until after the Civil War. The state regulates the business of insurance in general in two ways: (a) by laws governing the organization of companies; (b)

by laws governing the operation of companies. Again the difficult task confronts us of making statements which will be true in the different states, for whatever supervision there is results directly from the action of each of the state legislatures.

In addition to the general laws governing the organization of corporations, there are in most states special laws which govern the organization of insurance companies. The terms under which such companies can be organized differ according to the character of the organization, such, for example, as the special laws governing the organization of a fraternal society or the ordinary level premium life insurance company. Since the latter companies do the greatest amount of the business and also are the ones to which regulation is chiefly directed, our description of the regulation of the organization and operation of insurance companies may be taken as applicable to this kind of a company.

A very general requirement for such corporations is that they must deposit with the treasurer of state securities to the value at least of \$100,000. This is a requirement for both stock and mutual companies proposing to insure lives on the level premium plan. Massachusetts made this requirement of the New England Mutual, which was organized in 1835, twenty years before her state insurance department was established.

In some states there is a provision requiring the

retirement of the stock of the proposed mutual company with a maximum interest paid upon the funds which have been advanced by the incorporators of the company as a necessary capital to pay the large initial expenses of starting the company in business.

The laws governing the organizations of companies differ, of course, in the various states, but the general purpose in all cases is to lay down such principles, as will insure the ability of the companies to meet their obligations.

The value of a deposit as a guarantee fund after the company is a going concern is very questionable, since the company is setting aside a reserve and probably a surplus. If the assets of a company are carefully inspected and the transactions of the company supervised, this would seem to give all the required safety, so far as solvency is concerned.

If a company organized in one state desires to do business in another state, it must comply with the conditions laid down by the state which it enters. Insurance is not commerce, according to the decision of the Supreme Court and the various states may lay down in detail the conditions under which a company is permitted to do business. They must satisfy the authorities of the state that they are able to meet their obligations. A copy of the charter granted by the parent state, as well as a certificate showing that it is authorized to do busi-

Laws governing Companies doing Business in other than the Home State.

ness, is filed; also a statement of its financial condition showing income, disbursements, and a certificate showing that it has deposited with the officials of the home state a deposit, usually a minimum one of \$100,000. It also files the valuation of its policies made by the insurance department of the home state and a copy of all the policies which it proposes to write. Its agents appointed or to be appointed must secure a license from the proper authority. Other information bearing upon the character of the company and its methods of operation is secured by the proper state authority, usually the state insurance commissioner. If all this information seems to satisfy the state laws, the company is admitted by a certificate from the commissioner of insurance to do business in the state. The admitted company is then subject in its operation to the laws of the state on insurance. Some states entrust very large powers to the commissioner of insurance, while others lay down in statute law in detail the requirements for transacting the insurance business and require the commissioner to execute these laws with little discretionary powers. In either case the courts of the state can restrain the officials from violating the principles of equity.

In most states the certificate of the commissioner of insurance regarding the condition of the company is accepted in other states, but an examination of a foreign company can be made at any time and

such examinations, although not infrequent in the past, are becoming less frequent. One of the most important committees of the National Association of Insurance Commissioners ^{Examination of Companies.} is the committee on examinations. This committee acts as a clearing house of information for the various state departments of insurance. It has already done away with some of the evils connected with the numerous and sometimes unnecessary examinations made by numerous states. The examinations made by this committee are accepted in many cases by the state departments, although, of course, any state has the right to conduct a separate examination. The examinations made by this committee and used by the various state departments does not refer to the annual examinations, but to those comprehensive examinations of a company's business which are made from time to time, especially when suspicion arises concerning the conduct of a company's affairs. Such examinations would naturally be of companies doing business in several states at the particular time.

Independent of these special examinations each state makes an examination of its own companies. In some states this examination is required every year; in other states every two or three years. This annual, biennial, or triennial examination by the state department ordinarily concerns itself with an examination of the transactions of the company

during the preceding calendar year. The examiners take the last annual report and verify it. The items of income and disbursement are checked from the company's books. The assets are inspected ; all mortgages are inspected as to title and their proportion to the value of the property ; the cash in office and banks is checked ; and care is exercised to discover any weakness or any statutory violations of the investments. The liabilities must also be carefully investigated.

The principle of state comity applies in many particulars, but it has far from accomplished complete uniformity. The National Association of Insurance Commissioners has done much in establishing uniformity in certain directions, such, for example, as providing uniform blanks upon which a company reports its condition to the insurance department. In many other cases, especially taxation, no uniformity is found. It is also generally true that home companies are favored over those of other states in one way and another. A favorite method is by a lower rate of taxation or no taxation at all on premium receipts.

The state has laid down certain standards of solvency by requiring the use of one of the accepted mortality tables and the valuation of policies must be made according to that table with interest at 3 per cent or $3\frac{1}{2}$ per cent. In determining the reserve liability of a life

**State Comity
in Insurance
Regulations.**

**Laws gov-
erning Sol-
vency.**

insurance company the state insurance department generally uses mean — or midyear — reserves on the assumption that policies issued uniformly throughout the year are all, on the average, issued July 1 of that year, and hence when the valuation of a company's policies are made, as of December 31 of any year, the policies are all at their midyear. The midyear, or mean reserves are obtained by taking the half sum of the reserves at the beginning and end of each year on the assumption that a full annual premium is paid on every policy. Consequently deferred premiums to complete a full policy year are allowed in the assets. In industrial insurance the mean reserves just referred to are reduced by one half a net annual premium for a given kind and age, and deferred premiums are not allowed in the assets. On account of the heavy lapses in industrial insurance some reduction is usually made on first year reserves — about one half — and on second year reserves about one quarter.

The chief difference of opinion as to the proper methods of determining solvency has arisen in connection with the valuation of first year business. New York uses the select and ultimate method; that is, it assumes 50 per cent of the expected mortality will result on first year's business, 65 per cent on the second, 75 per cent on the third, 85 per cent on the fourth, and 95 per cent on the fifth. This assumption permits mortality gains to

be used for expenses. In other states the preliminary term or modified preliminary valuations are used. The latter plan views the first year of insurance as term insurance or part term insurance, thus also setting free a large part of the premium for the large expenses connected with writing the policy. In valuing assets certain rules are laid down for valuing stocks and bonds. The market value on December 31 has generally been used, but in the last two or three years the amortization plan has been adopted, by which the values do not fluctuate with the market, but increase or decrease uniformly to par value so as to yield the same effective rate of interest throughout the period. Home Office buildings and real estate owned by the company are valued by the local appraisers who know the value of the property.

Other Statu-
tory Re-
quirements. A requirement of many states is that a company is not permitted to write both participating and non-participating policies or, if, both kinds are written, it is required that they be kept separate in the bookkeeping of the company. The tendency is for stock companies to write nonparticipating policies and mutual companies to write participating policies. It was urged that the evidence in the insurance investigation beginning in 1905 showed that in actual practice the equity of each kind of policyholders was not observed.

Annual distribution of dividends is a very general

requirement. Standard provisions are required in all policies. These have to do with cash surrender values, options in settlement, loans, lapses, payment of premiums, and claims and many other subjects which are of general interest to all possessors of an insurance policy.

As a result of the investigation, New York required a standard policy, but after two years' experience with it, the law was changed to require standard provisions in policies. The subject of investments is one upon which there has been a great amount of legislation. Not only has the state prohibited certain kinds of investments, as, for example, the permanent possession of real estate, but it has further limited them by specifying in what kind of securities the assets can be invested. This kind of regulation was adopted in many states before the establishment of the insurance departments, since the importance of having these funds securely invested was early recognized. The first restrictions were chiefly applicable to the original deposit, but by 1875 a number of states had restricted the investments of the general assets. At present the restrictions as to the character of the securities differ considerably in the different states. In all states investments in government bonds are permitted, although a few states limit the investment in bonds of other than the home state. Some confine mortgage loans to the home state of the company. Most of the

states very carefully restrict the investments in corporation securities. New York prohibits all companies doing business in the state from investing in corporation stocks. Ohio follows the same practice. In the latter state, state and local government bonds cannot be purchased when their market value is less than 80 per cent of their par value.

We may summarize the regulations regarding investments as follows: (a) The tendency to prohibit the investments in real estate except for Home Office Buildings is marked, but more liberality is made in regard to loans on real estate; (b) more liberal provisions regarding the investment in public securities and stricter regulations of the investments in corporation securities is the general rule.

Some states, notably Texas, have shown a decided disposition to require a large amount of the reserve funds on policies to be invested in the securities of the state. Texas has not, however, been alone in the effort to make a market for the securities of the state, for almost all the early charters showed a tendency to confine the investments to the home state. So far as the legislation had for its purpose the protection of the funds by making possible a better knowledge of their actual value, there was some justification for the policy in the early days, when correct estimation of the value of securities could not be easily made. So far as the legislation has for its purpose the keeping of money

**Investments
of Reserves
in the State.**

within the state, it was more than questionable, for if the securities purchased must have a market made for them, this fact was at least presumptive evidence that these securities might not be desirable ones for an insurance company.

The purpose of regulating the investments of insurance has been to limit the investments to such securities as will bear the inspection of the public and guarantee the security of the funds. There are many who think that the restrictions are too severe and that a wide range of investments should be permitted under the supervision of the insurance departments. But the element of risk is so frequently present in corporation securities and the public demand is so insistent, and rightly so, for security as the first test of an insurance investment, that notwithstanding the greater return to be often procured from corporation securities, there is no immediate prospect that the field of investments will be widely extended.

Certain regulations have been attempted in regard to the remuneration of officials and agents. Some states have established a maximum salary to be paid to the president and maximum commissions to agents and especially the amount of renewal commission to be paid, that is, the amount paid to the agent on premiums subsequent to the first.

Salaries and
Commis-
sions.

Most of the states have laws prohibiting rebating, that is, the reduction by the agent to the purchaser

of the first premium ; in most cases the penalties imposed apply only to the agent giving the rebate.

Rebating. There is a tendency in some quarters to punish both the recipient and giver of a rebate. No company or its employees are permitted in most states to issue any estimate misrepresenting the terms of any policy issued by it or the benefits or advantages promised.

New York also established a limitation on the amount of new business which could be written in any one year. This limit is decreasing in its percentage with the increase in the amount of business on the books of the company. The New York law also limits the amount of the contingent reserve or surplus which can be held by a company.

New Business. All the states require annual reports to be made to a state department by each company doing business in the state. While the regulations on this subject differ somewhat in the different states, there is a tendency to secure uniformity in these reports, as a result of the activities of the National Association of Insurance Commissioners, which has a permanent committee on blanks that has drawn up uniform blanks, upon which the different kinds of insurance companies report. These blanks are revised from year to year as new laws or experience may necessitate. The chief items of information found in these reports are as follows : first year's premiums, renewal premiums, interest, and rents, which

comprise the source of income ; the amount paid for losses and matured endowments, annuities, dividends, salaries, taxes, and expenses, which make up the chief disbursements ; various schedules, such as the schedule showing the dividends paid on different kinds and classes of policies and the schedule showing the character of the investments. Other parts of the report show the condition of the reserve, surplus, the assets, and liabilities of all kinds. The report as a whole gives to the public an analysis of the financial condition and the status of the company, as well as information about commissions, medical examinations, advertising, taxes, legal expenses, lapses, the surplus, reserve, and other items, which will give to the public a knowledge of the transactions of the company. There is a very marked tendency to require the reports to be made in greater detail.

The subject of taxation is one to which the companies have most consistently and continuously objected. These objections are based upon **Taxation.** two grounds ; First, it is argued, that insurance is not a proper source of revenue for the state, and second, that there is no uniformity in the tax in the different states. It is argued that insurance is not productive ; that it does not lead directly to the creation of wealth, but on the contrary aids greatly in the more equal distribution of wealth ; that it is a fund set aside from income to care for those dependent upon the producer and thus relieves the state

from supporting some who otherwise would either become subject to their charity or would, through lack of adequate preparation, be inefficient producers and citizens ; that the insurance policy is not a form of income bearing property ; that the premiums are a form of a self-imposed tax.

It is urged that the policyholder must in the end bear the tax in the form of a higher premium, and thus the tax acts to discourage insurance by increasing its cost. That whatever of funds are collected from policyholders are so invested that they either bear a tax by their investment in real estate loans or aid the treasury of the state, if they are invested in state or local government securities. At the farthest those who object to taxation of insurance receipts would permit only such a tax as would support the insurance department of the state, that is, an inspection tax or fee. The taxes are usually levied on the gross premium receipts derived from the policyholders in the state, but in addition there is sometimes a state license tax, a charge for filing the annual statement, agent licenses, and a city and county tax on premiums. The last name is a peculiarity of the taxes of several of the southern states.

The home companies are frequently exempted from paying some of these taxes, but this practice does not often accomplish the purpose intended, that is, it does not give preference to home companies, because most of the states have a retaliatory law which

is automatic in its operation. An Ohio company, for example, although exempt from taxes on its premium receipts in Ohio, must pay taxes in other states where it does business, because the home companies of those other states must pay premium taxes in Ohio, if they do business in Ohio.

The state tax on gross premiums, although in a few cases it is on the net receipts, varies from 1 per cent to 3 per cent. The amount collected by the states in the form of licenses, fees, fines, and taxes — excluding taxes on real estate owned — from ordinary life and industrial companies in 1909 was \$9,708,241. This was 2.4 per cent of the total premium receipts of these companies during that year. It has been urged that the tax should be added to the premiums charged in each state and therefore assessed upon those policyholders whose state exacts the tax. Whatever theoretical justification this plan has as a matter of equity, it is practically impossible, since among other difficulties it would involve different rate books, policies, and reports for the different states, and add enormously to the bookkeeping work of the company and doubtless would be a violation of the antidiscrimination statutes of some states.

The reasons for the existence of the tax are not difficult to understand. The legislator in a democracy is constantly seeking revenue from sources from which objections will not be made. The large accumulations of funds by the insurance companies can

be used without great popular objection. Notwithstanding that these funds are chiefly liabilities for obligations already incurred, they afford a ready source of revenue. The real owners of these funds — the policyholders — do not often perceive the burdens, since they are very numerous and the amount borne by each is very small. The availability of the funds for taxation and the absence of any great popular objection to the tax would therefore seem to be the chief reason for the tax. It is easy to get and therefore is taken without much consideration of the equity of the taking.

From insurance officials and many students of insurance a demand has arisen for the federal regulation of insurance. This can be accomplished either by an amendment to the constitution or by securing a reversal of the decision of the Supreme Court in the case of *Paul v. Virginia*, in which the court decided that insurance was not commerce and therefore not subject to the regulation of Congress. We may briefly summarize the reasons for this demand for federal regulation : First, the business has become interstate in its character, for no important company confines its activities to a single state. By entering a number of states, it secures a wider distribution of its risk on lives as well as on its investments and thus is likely to secure better average results. Second, the very general absence of uniformity in the regulations of the different states

**Federal ver-
sus State
Regulation.**

which makes more difficult and expensive the transaction of the business. Third, the heavy burden placed on the business in the form of taxes and the lack of uniformity in these taxes. Fourth, the difference in the state laws governing the making and construing of the contract, and the limitation placed upon the judicial rights of the company.

At least fifteen states have enacted a law which either prohibits or very greatly restricts the right of a company to remove a case from the state to the federal courts. In case the company does remove the case, the insurance commissioner is given the right to revoke its certificate to do business in the state. Fifth, the preference of home companies over companies of other states. Sixth, the failure of publicity and regulation under state laws to accomplish their purpose.

Publicity as it is now provided cannot protect the policyholder in many respects. Many policyholders cannot analyze the reports of companies sufficiently to determine their conduct and even many more policyholders are not sufficiently interested to make the attempt. Much greater positive protection could be secured by enforcing responsibility upon the trustees of insurance companies, by making them liable for the acts of officials whom they are chosen to direct. Seventh, the character of the insurance department officials in the states. In a number of states this official is elected by the people or by the

legislature and in other states appointed by the governor. In either case, it is argued that his election or appointment is likely to be a proof of the ability of the official as a politician rather than an indication of his ability to perform the duty of this office which requires considerable knowledge of a technical character. It is doubtless true that the office has been the tool of politics too frequently, but within the last decade there has been a marked improvement in the personnel of the state insurance commissioner. The office is, however, usually of too uncertain tenure for a commissioner to accomplish very much in a constructive way, even if he is an able one. After an official has been in office long enough to learn the business, he is likely to be replaced by another member of his political party or some one from the opposing political party. However, much of the work has become so technical that the clerical force cannot be immediately changed with every change in the chief officials, and this fact largely explains why the state supervision has been as efficient as it has been.

Notwithstanding the many valid objections against state regulation of the insurance business, it is not probable that we are soon to have federal regulation. This is not to be explained by the difficulty of securing an amendment to the constitution nor on the ground that the Supreme Court is not likely to reverse itself. It is primarily due to the fact that the

states have no desire to give up its regulation. They would resist any attempt to transfer its regulation to the federal government. It is too important a source of revenue for the states and too many opportunities are present to benefit the people of one state apparently at the expense of another state by securing from foreign companies large revenues. The people at large have not yet a sufficient understanding of the character of insurance to perceive its social significance and to comprehend that it is a business of general rather than local interest.

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CHAPTER XI

INSURANCE FOR THE WAGE EARNERS

WE shall include under the discussion of industrial insurance a description of the industrial insurance sold by the private companies for the organized for that purpose, the various Working Classes. plans of workingman's insurance, the employer's liability insurance, the old age pension plans and state insurance. Our chief purpose is to describe the principal means employed to secure protection for the wage-earning class. In addition to the above enumerated plans it must be understood that such work of protection is carried on by local relief societies of many descriptions, by fraternal societies, and by trade-unions. These methods are usually so simple and well known that they do not demand a detailed discussion. It is also true that ordinary life insurance is carried by many of the wage-earning class. The term "wage-earning class" may be a somewhat indefinite one, but the phrases "laboring class" and "industrial insurance" have to most minds definite significance, and in the business of insurance there have been developed particular forms of insurance to serve the wage-earning class.

Industrial insurance may be supplied in the following ways : (a) By private stock companies organized for profit. (b) By private mutual companies. (c) By private companies whose business is a direct result of legislative and judicial action in fixing responsibility for loss upon the employer. This may be either voluntary or compulsory insurance. (d) The state itself may supply the protection.

Before discussing each of these methods, it is important to understand how the evolution of industrial society has caused the need of, **How the Need for such Protection Arose.** and the demand for, insurance for the wage earners to arise. In ancient and medieval times the social and industrial organizations precluded the existence of insurance for the wage earner. Indeed, there was no such class as wage earners as we now know them. During the existence of slavery a large part of the work was done by this class, and as the slave was considered a species of property, nothing was owed to him by his employer or owner. He cared for him, not so much as a duty, but because it was to his economic interest to do so. The comparatively simple industrial life of the early times gave little value to the life of an individual as such. During medieval times, the feudal system prevailed and the masses of people, although having in many cases comparatively few rights, enjoyed protection from their lords. The hierarchal form of social organization gave a definite status to each

member of the social group. Later, when the trade and labor classes had freed themselves from their dependence, guilds and fraternities arose. One of the most important purposes of these organizations was to care for their members in times of sickness and for the deceased member's family in case of death. The first classes to secure independence were the commercial and trade classes of the free cities and as capital developed they assumed gradually a position of greater independence and importance.

Capital was being accumulated from the activities of the trading and commercial classes. The discovery of gold and silver in the new world supplied a stock of metals upon which a money economy could be established.

The Industrial Revolution.

The age of discovery opened up new lands for exploitation and brought into existence new commodities and new markets. The whole industrial world was on the eve of a revolution as a result of the accumulated capital, the stock of metals, and the new markets. This so-called industrial revolution is usually said to date from 1785 to 1825, but this period marks only the dates between which the transfer to a new industrial system was most rapid in England. The changes were so very marked that the word revolution may be applied to this period in England, but in other European countries and in the United States no such rapid changes occurred. It will be more ac-

curate to call the change an evolution rather than a revolution and fix the dates to include the seventeenth, eighteenth, and the first half of the nineteenth centuries because during this period the capitalistic system was fully established in the European and American countries. The feudal system had disappeared, the household or domestic system of industry had largely given way to the factory system, which the previous accumulation of capital made possible, and the new markets made desirable. But most important for our purpose the status of the laborer was radically changed.

The laborer lost his tool and gained the machine, which, on account of its high cost, was beyond his powers of private possession. He lost his personal master, and gained the impersonal corporation. The conditions of labor were

**The Change
in the Status
of the
Laborer.**

now to be determined, not by two persons, the laborer and his master, but by one person and a thing. The laborer gave up the workshop of the home and went into the factory. He worked for a money wage under a wage contract. He was no longer a capitalist and a laborer, but simply a laborer selling his only possession—time. In the unprecedented demand for goods, it is not surprising that the capitalistic class was often unmindful of the duties which they owed to the laborer as a man.

We need not rehearse how the humanitarian ideas slowly developed and how they gradually became

expressed in various measures designed to protect the wage-earning class ; nor what efforts were made by the wage earners themselves through the formation of friendly societies and trade-unions to protect themselves ; nor how there came to be a labor question and why the neglect of the labor class during this period of the industrial evolution has caused the problem to become so acute in the present ; nor how England, because she was the farthest developed industrially, began to enact laws for the protection of the labor class early in the nineteenth century and how other nations have followed her example. For our purpose it is sufficient to understand that the character of the industrial organization of the present, demands institutions designed particularly for the industrial classes.

We shall concern ourselves with only one of these institutions, namely, industrial insurance. The purposes of such insurance may be classified as follows : (a) to protect against the losses, resulting from death ; (b) to protect against injuries ; (c) to protect against old age ; (d) to protect against sickness ; (e) to protect against unemployment.

We have seen that the industrial insurance which is sold by the private companies, such as the Prudential and Metropolitan companies in the United States provides for the insurance of every member of the family from ages 1 to 70. The premiums are

paid weekly and are five cents or multiples thereof, depending on the age and the amount of insurance carried. For persons under 10 the average policy is about \$30 and for those over 10 about \$150. The premiums are collected weekly by the agents of the company, and this is the most important element in making the cost of the insurance high to the policyholder. This kind of insurance was first written in England in 1854 by the English Prudential Insurance Company and in America by the American Prudential Insurance Company in 1875. By this time there had developed in both countries a large number of wage earners and in both countries this kind of insurance soon proved popular. At present there are about fifty million industrial policies of this description in force and in the United States the amount of business in force in 1910 was about three billion dollars on twenty-two million policies, or an average of \$140 per policy. The proceeds of these policies are intended and used in most cases to pay the expenses of burial.

The premiums are based on mortality tables which the experience of such companies have shown are fully adequate to meet all obligations. **The Premiums on Industrial Policies.** Indeed, within the last decade some of the industrial companies have voluntarily distributed to their policyholders millions of dollars in dividends or in premium reductions or in additions to the insurance. The contract does not differ in a

great many particulars from the ordinary life insurance company's contract except that it is a life contract, that is, it is death insurance. The lapse ratio is for obvious reasons much higher than in the ordinary company. The agency department is necessarily one of the most important departments and in several of the large companies it has become a marvel of efficiency. The agent is paid on a commission contract, the terms of which make it to his interest to prevent lapses, as well as to secure new business. Some of the more important direct and indirect benefits claimed for industrial insurance are : —

Benefits of Industrial Insurance. First. It directly encourages thrift and saving on the part of the wage earner. He acquires the habit of saving and is often able to save funds out of his earnings in addition to his insurance premium. It is very questionable, however, if the saving habit is relatively increasing. The industrial conditions are probably making saving more and more difficult and at the same time making the incentive to save less and less. The standard of living has been rising so rapidly that there is a continual pressure on the workingman to spend his income for necessities, conveniences, and luxuries. There is less and less opportunity for the wage earner to purchase small amounts of property which by its very material existence would afford a powerful incentive to save because it would be a tangible expression of an intangible effort. It is probably true that few

wage earners under the present industrial and social system can look forward to owning their homes.

Second. It doubtless does much to preserve self-respect and family affection by providing a burial fund, instead of receiving from the public, funds for this purpose. However, in many cases, human vanity is sacrificed to family needs in providing an extravagant funeral.

Third. It not only provides sufficient funds for burial and the expenses incident to the illness, but in many cases something is left for the widow and children's support for such a time until adequate means of support can be found.

Fourth. It also in an indirect way supplies large accumulations of capital for the demands of modern industrial activity. The insurance sold by these private companies has far from solved the problem of securing adequate insurance for the industrial classes, for, as we have seen, it provides for a fund only in case of death, and the greater part of the fund is used for burial expenses.

There are many voluntary organizations of the working class which supplement both the activity of private companies and also the compulsory insurance required by the state. **Voluntary Organizations.** Among the most important of these organizations are fraternal orders, trade-unions, local relief societies, and the organizations formed by corporations and their employees.

The fraternal societies are composed of a national organization and subordinate lodges, governed in all **Fraternal Societies.** affairs of general importance by the charter issued to them by the grand or central lodge. Funds are collected by the central lodge from the local lodge in the form of assessments and out of these funds are paid the death benefits. Benefits are usually paid from the local lodge in case of illness of a member and very frequently "out of work benefits" are paid. Some few of them have attempted to found an old age pension fund. In addition to the insurance feature, the social and ceremonial aspects of the organization appeal to many. Not all the membership would admit of classification in the wage-earning class, but the greater number could be so classified. We have already seen that the greatest weakness of such orders is that the collections are not based on any scientific plan. Many of them do not even use the National Fraternal Congress Table of Mortality, whose rates of mortality are considerably lower than any of the commonly used mortality tables of the regular insurance companies. The state has done little in supervising these orders and the beginning of state supervision now promised will undoubtedly do much to preserve and extend the benefits of these organizations which have been based on laudable motives and honestly conducted in most cases, although too often on unscientific plans.

Trade-unions among their other activities have paid out large sums for the insurance of their members. They have as yet done little in the case of accidents and old age pensions, since they have depended largely on the employer's liability laws to secure awards for accidents. It is at the time of sickness and death that the chief benefits are paid. These benefits are sometimes paid out by the local union, but there is a marked tendency towards the practice of having these funds collected by the National Union. The ordinary plan is for each member to pay a certain sum each week or month into a sick and death benefit fund. The death benefits do not, however, usually consist in the payment of a sum in excess of the expense of burial and the illness connected with it. The premiums necessary for the payments of these benefits manifestly vary from union to union. They are determined by the character of the organization or of similar organization. This activity of the unions has done much to popularize them with the wage earners. The members feel that they are providing for themselves and the management of these activities has usually reflected much credit on the labor union. It is suggested that as the state works out a suitable plan of insurance for the industrial classes, it may find it advisable to use the trade-union as an agency for distributing state funds. That is to say, the state would subsidize the union by transferring to it funds which had been col-

lected by taxation. This would not be giving these funds in any sense of a charity. It would be a legitimate cost of production which society ought to bear and which is returned to those who are now unfairly bearing a high cost of production. It is sometimes replied that this deficient wage should be given to the industrial worker at the time he earns it, that is, in an increased daily wage, but the actual method of making the wage contract precludes any likelihood that this will be done.

The local relief societies which secure protection for the industrial classes are very numerous. They **Local Relief Societies.** are purely voluntary organizations and have no central organization. They are most commonly formed by the employees of a large firm or corporation. The employers may or may not contribute funds to the employees' organization. A common bond of union and sympathy exists among the employees of any large business concern. In the more loosely formed organizations of this description no adjustment of the contribution on the basis of wage received is attempted. Each pays what he pleases with the result that the contribution is not always equitable. In the better organizations adjustment of payments to wage is made. Membership in all cases is voluntary. Sick and death benefits are paid, but the amount differs widely from organization to organization. The greatest weakness in such organizations is that the plans on which they

are conducted are usually unscientific and that each confines its activities to the particular plan, thereby depriving itself of the benefits of the general experience of such organizations. The retiring member receives no return for his past payments. Those in charge of the funds sometimes defraud and often no recovery against them is possible.

The relief societies formed by some of the large corporations, such as the United States Steel Corporation and the Railways, differ from the Relief Departments of Corporations above in that the former are organized, managed by, and composed of, the employees, while in the latter organizations the employers have a part. In most cases the employer originated the plan. He contributes largely to the benefit fund and assists in its management. The amount—if any—paid by the employee is adjusted to his wage, but no employee is required to become or to continue as a member. Sick and death benefits are paid, the amounts differing in different relief societies. In many of them benefits are paid in case of accidents, and in case of death, benefits are often paid to some one dependent upon the employee. The dues of the members are usually deducted from their wages. In many cases pensions are paid after a specified period of service with the company.

The organization and management of this class of relief societies is usually very efficient and in marked contrast to that of the employees' organizations.

There is a security and certainty about the contributions and payments. The cost of the pensions now paid by several of the railway companies is wholly borne by the company, but there are very definite limits under which the employee is alone entitled to receive the old age pension.

It is often argued that the activity of the state legislatures and courts in enacting and interpreting

**Reasons for
Relief Socie-
ties.**

the employer's liability laws has had much to do in causing employers to organize such relief societies ; that it is a deceptive generosity ; that in effect there is a pressure felt by the employee to become and continue a member of such societies ; that relief is thus sought from liability under the law for accidents and injuries to the employees by thus making the employee less willing to institute a suit for damages. Even though a contract was made which by its terms freed the employer from liability because the employee received the specified benefits, the right of action for damages would in most cases still exist. Some states have enacted laws which expressively state that an employee cannot thus contract away a common law right.

However, it must be recognized in fairness to the parties concerned in such industrial insurance that there has been a wonderful advance in the recognition of the obligation which employers owe to employees and a commendable willingness on the part of many employers to assume the legal as well as the

moral obligation. It is true that we have only made a beginning, but the spirit now prevalent argues much for the better solution of the problem. In some cases firms and corporations pay the premium for accident insurance of the employees in private insurance companies.

We have now to consider another form of insurance for the industrial classes, viz. liability or employer's liability insurance. The terms "liability insurance" and "casualty insurance" are often used interchangeably by the uninformed, but, properly considered, the former is included in the latter. Casualty insurance is insurance paid in case of bodily injury or death or for losses or damages to property, excluding losses by fire, which have been caused by accidents or contingencies not ordinarily contemplated. Its chief kinds are personal accident, liability, steam boiler, plate glass, and elevator insurance. We are here concerned with only one form of liability insurance and first with the liability insurance sold by private companies to employers.

The rise of this form of insurance was a direct outgrowth of the action of legislatures and courts in either establishing new principles in regard to the obligations of the employer to indemnify his injured employee or by the enactment into statute law the common law principle of the employer's liability. It is therefore to be distinguished from other forms of

insurance in that it is the result of the activity of the state either by its courts applying the common law or by the legislature enacting into law the principle of employer's liability.

We have seen that the relation of laborers to the employers in ancient and medieval times was quite

**Theory of
Employer's
Liability.** different from what it has come to be in modern industrial times. The factory system was not in existence, and the bond of

relation between the laborer and the employer was closer. The personal relation was more definite. In most cases the number of employees of one person was limited. The laborers worked for a person, not for a corporation. Out of this relationship of early times there grew up a common law principle of liability of the employer to his employees, which, although it did not secure full protection to the laborers, yet was thought sufficient until late in the nineteenth century, when the common law principle became expressed in statute law. No greater proof of the helplessness or disadvantage at which the laborer bargains with the capitalist for his wage is to be found than in the fact that it was over a century after the establishment of the factory system before an employer's liability law was enacted. Dependence was placed in the operation of the common law principle which had grown up from very early times.

We naturally look for the most definite expression of this principle in Roman law. We find that the

master under this law was not only responsible to the servant for any injury suffered by the latter when not due to the employee's carelessness, but the master was also subject to liability for an injury suffered by a third party as a result of the actions of the servant when in the employment of the master. It is important to understand, however, that the liability did not rest upon the master in the following cases : First, if the person injured was a fellow-servant. This is known as the fellow-servant doctrine. Second, if the employee knew or had means of knowing the dangers incident to the employment and voluntarily accepted the employment. This is known as the assumed risk doctrine. Third, if the injury resulted from the combined negligence of employer and employee, that is, the latter contributed to the negligence which resulted in his injury. This is known as the contributory negligence doctrine.

**Liability
under the
Roman Law.**

We state that it is important to understand these limitations or exceptions because practically all the legislation and all the court decisions since this far distant date, so far as they have given greater protection to the employees, have done so by modifying or doing away with these limitations. This is the goal from which we have started and the goal to which we go is to assess upon society in some manner the total costs of production ; to secure for the laborer, not only an adequate daily wage, but also a

protection against accident however caused, against sickness, unemployment, invalidity, and old age. Not until then will many agree that an equitable system of distribution has been devised, for the burden now resting on the shoulders of the laborer is not all his own.

Without tracing the changes in the conditions of work and the changes which occurred in the industrial

The English Law of Liability. organization after the establishment of the factory system, we may at once state that as a result of these changes England passed an employer's liability law in 1880. England was the most advanced industrial nation, and this fact, together with the character of its people and government, accounts for this law. The most surprising fact about the law is that its enactment was so long delayed both in Europe and America. A few years later (1887) Alabama and Massachusetts passed a similar law. Other states have slowly followed, and we shall again have the very great difficulty of attempting a description of a form of insurance, the characteristics of which are determined by the action of the legislatures of various states.

Congress has power to enact such a law only in so far as it applies to interstate commerce, industry in

The Law of Liability in the United States. the District of Columbia, and its own employees. Even in these cases the power is limited, as has been shown by the courts declaring illegal the law of 1906 pertaining to the liability of common carriers. It must be remembered,

however, that the common law principle of the employer's liability was in force in all the states and in many states this common law had been expressed in statute law. In many cases the old common law principle was enlarged at the time of adopting it in the form of statute law, and the effect of the changes made by the states since then has been to enlarge the principle. The personal relation of the employer and employees has become more distant with the integration and concentration of industry with the result that the state has felt it necessary to aid the employees in securing that protection which they could not of themselves secure. So much for the conditions which give rise to employer's liability insurance. It now remains for us to describe how this insurance is conducted.

The object of employer's liability insurance is to indemnify the employer for losses which he suffers as a result of the enforcement of legal claims made by his employees. These claims arise when injuries or death result to the employees while in the service of the employer or to third parties when about the premises or property of the employer. This protection is purchased by manufacturers, by contractors, by transportation companies, by mine owners, by owners of hotels and theaters, or by any other large employer of laborers. The indemnity may cover, not only employees, but any one who suffers an injury from the activity of

Purpose of
Liability
Insurance.

employees and ownership of property. That is to say, it may be general liability, covering all liability for damages to third parties. The employer or owner purchases from a company this protection and when an injury is suffered by a person, for which he may be liable for damages, the company settles the claim or defends it in the courts. The employer or owner has nothing to do with it. He has purchased this protection and freedom. The insured gives notices to the company, and the company disposes of the claim.

The premium is based, in the case of employers of labor, upon the wages paid and the character of the industry. The premium is a certain per cent of the total wages paid. It may or may not include salaries of the higher officials or employees. The calculation of the premium is not as simple a matter as it would seem. First, the number of employees and amount of yearly wage varies. There is therefore provision for a return of a surplus premium at the close of the year or for the payment of a deficient premium by the employer on the basis of the actual wages paid. When individuals leave the employment, this relieves the company of liability and hence affects the premium which should be collected. Second, in many occupations the degree of hazard varies widely in the different parts of the business, and equity would demand that the part with little risk should not be burdened by the part with the great risk. Third, the laws of the dif-

ferent states differ in the degree to which they make an employer liable. Some fix a maximum amount of damages which may be collected, while others do not, and juries differ very greatly in their idea of what constitutes fair damages. Again, frequent changes are being made in the laws, and these require a readjustment of rates. The adequacy of the premium was a matter for experience to disclose and evidently no such accuracy as in the case of the life insurance premium has been or probably can be secured.

Coöperation of such companies was secured from 1896 to 1900 and valuable results were secured by compiling the experience of different companies, but one of the leading companies withdrew from the organization in 1900 and new companies were organized, so that less coöperation is now found. In no other kinds of insurance is coöperation needed so much as in casualty insurance, for its rates are the least scientifically determined, and even with the best coöperation certain elements in the cost cannot be determined.

The company writing liability insurance has inspectors whose duty it is to inspect plants or buildings upon which insurance against claims by workmen or users is desired. The character of the industry or building may preclude any company writing such insurance for the employer or owner, and it is the duty of these inspectors to inspect, not only pro-

Coöperation
among
Companies.

posed risks, but actual risks. They advise the employer and owner of methods by which accidents may be avoided. The owner is usually disposed to accept the advice, since it may favorably affect his premium.

Employer's liability insurance has developed since 1880, and in 1909 the premium collection on such insurance by the private companies was about \$25,000,000 and the loss payments for the year about \$10,000,000. The expense of conducting such insurance is large, for in addition to the ordinary expenses of an insurance company, such as soliciting the insurance and office expenditures, the expenses of inspection and settlement are very much larger than in an ordinary company. The very numerous changes which are being made by legislatures and courts in reference to the relation of employer and employee are producing very great changes in this form of insurance. Policies are being changed to comply with the new conditions.

There are many objections to the compensation of workmen under the law of negligence, but the most important objection is that in the actual working of the principle, the workmen receive a small part of the sum paid by the employer for such purpose. The New York employer's liability commission states in its report of 1910 that the statistics collected from

nine insurance companies which keep separate employer's liability records show that on an average only 36.34 per cent of what the employer pays in premiums for liability insurance goes to the injured workmen. That is, for every \$100 paid by the employer for protection, less than \$37 is paid to his injured workman. The \$63 is paid to attorneys, claim agents, and for the cost of soliciting the business and for administration.

It must be understood that this contract of insurance covers only the legal liability of the employer to his employee and not the moral obligation which either the employer or society owes to the workingman. Then, too, as we have seen, this form of insurance has not been applied to some plants and scarcely at all to some industries, such as the agricultural industry. It must be evident, therefore, that great numbers of the industrial classes are not now protected from the risks inevitably associated with their employment and which they must accept because they must sell their product—labor; and in contrast with all other products the seller—the workman—must deliver himself with his product. The purpose of the changes now being made is to increase the protection to the working class, and the final result will probably be to lay down a broad policy of workingman's compensation under which he will be protected for all occupational injuries; or, if carried still farther, the working classes

**Limitations
of the
Policy.**

will be protected against unemployment, sickness, and infirmity. In any case liability insurance will have a wonderful development and two methods of providing this insurance may be supplied. It may be secured from private companies, organized for this purpose. This is the chief method now in vogue. In this event the cost of the greater protection will be shifted ultimately to society by the employer in an increased price for the goods. If the industrial nations should adopt the principle at different times, it may mean hardships to particular employers in different countries in that their cost of production will be increased.

This protection may be supplied directly by the state. In this event the funds for this purpose would be collected by taxation, and society would also bear the cost. No general agreement can be secured as to which of these methods would be most economical and most advantageous from a social standpoint. It must be realized that the cost of industrial accidents, unemployment, and dependent old age is now being borne by society in the form of charity and various means of relief and assistance. The important points to realize are, first, that those who suffer from these industrial accidents are often not well enough cared for to maintain themselves as efficient industrial and social workers, and second that in the present methods of relief, there is great danger of pauperizing them by creating the idea that

the relief is given to them as a matter of sympathy and not as a matter of justice.

The costs of progress are always present. A part of these costs is a social cost and should be paid for by society. Another part may well be considered an individual cost, and it is too much to expect that the state in some mysterious manner is to be able to prevent misfortune from occurring to any of its members, or, if it does occur, to indemnify him for the loss sustained on account of his own ignorance, lack of thrift, and industry. Society must see to it that the individual is given a chance to do and an incentive to do, but no more fatal check to progress could be established than a system which would encourage the individual member of society to look to his fellow-members to do his share of the world's work, to reimburse him for all his personal misfortunes and to rectify all his mistakes.

The activity of the state in the United States in regard either to aiding directly the wage earner or compelling insurance of the working class has been limited. Its chief activities are **Government Pensions.** confined to federal, state and municipal pensions.

The federal system of pensions for those who have served the state in time of war is too well known to need description. This has been also applied to the life-saving service and to the army nurses. It has been proposed to apply it to all civil service employees, as is the case in most countries, but the

proposal has never been accepted in the United States. The southern states also provided a pension system for those who served the confederacy during the Civil War. It is true that this form of insurance as well as that of the cities applies to a particular class of workers, but no account of industrial insurance would be adequate without reference to these systems.

A number of cities in different states provide a pension fund for the firemen, policemen, and teachers.

Municipal Pensions. In the case of the first and second class the funds are derived from various sources. Sometimes the proceeds or parts of the proceeds of special taxes are set aside for this purpose. The subject has caused considerable discussion and the laws providing for such pensions have been frequently a matter for adjudication by the courts, since the laws governing municipal action differ in the different states and are frequently changed. Benefits are generally paid to the widow of the employee of the city in case of death, and a pension is granted to minors. After a certain period of service, the employee may be retired on a pension, or a pension may be paid for disability acquired in the service of the city. Teachers' pensions are on much the same plan, although laws attempting to secure a compulsory contribution from the employee have been declared unconstitutional in several states, such as Ohio and Minnesota. The next step will probably

be to require compulsory contribution. The arguments for and objections to such plans of insurance will suggest themselves, and since all these plans are yet in their developmental stages, no detailed account of them is here attempted.

The state which has gone the farthest in legislating on insurance for the industrial classes is Massachusetts. In 1907 this state passed a law State Insurance. which permitted savings banks to establish departments to sell life and old age insurance. The cost of administration is sought to be kept low by its association with the banking activities and by the absence of solicitors. The past experience of providing insurance without solicitors has not proved successful, but it is hoped that the insurance under this plan will be solicited by organizations, such as labor unions, benefit associations, and employers who seek to have their members or workmen insured. The plan has not been in operation long enough to decide its success or failure.

It is in the European and Australian countries that we find the best example of state activity in reference to insurance for the industrial State Insurance in Foreign Nations. classes. We shall select Germany, England, and the Australian countries as typical of the most advanced action in this direction.

Germany provides for compulsory accident, sickness, and old age insurance. The insurance of

workmen against accidents dates from the imperial law of 1884, which with its later amendments requires compulsory accident insurance to be paid to practically all workmen, managers, and administration officials whose salary does not exceed \$750 per annum. The enforcement and administration of the law is very largely in the control of the employers with state supervision. Mutual associations of employers in the same or closely allied trades or industries are formed. These associations determine the amount to be paid by each employer. This payment is based on the pay roll and the risk of the particular factory or plant.

The compensation to the injured workman includes the following: (a) medical attendance, including bandages, crutches, spectacles, etc.; (b) a weekly payment, based on the wage received, the extent and duration of the disability; (c) in the case of death a burial benefit and a pension to the dependents, if there are any. The workingmen's sickness insurance societies pay a sick benefit for a period of at least thirteen weeks and of this sick benefit, the employer contributes one third. The employers are thereby relieved from the payment for this period of time. The cash benefit for partial disablement is two thirds of the decrease in the earning power and for total disability two thirds of the wage. Free hospital

State Insurance in Germany.

Benefits paid in Germany.

treatment until cured and a reduced benefit to dependents may be taken in lieu of the cash benefits, but in case of total disability the cash benefit may be increased to the total wage.

In case of accidental death a burial benefit is paid, and a pension to dependents ; for the widow as long as she continues a widow and for the children until age 14. These pensions vary from 20 to 60 per cent of the average wage. If disablement of the workman continues beyond thirteen weeks, the amount to be paid is determined by these mutual associations of employers, but provisions are made by which the workman can appeal to a board of arbitration composed of two representatives of the employers, two of the workmen, and one appointed by the state. This board hears claims from injured workmen or from claimants for benefits on account of the death of the workman.

Compulsory sickness insurance is provided for practically all workmen except agricultural laborers, domestic servants, and those whose annual salary exceeds \$200. This law was enacted in 1884 and its administration intrusted to the many societies which already existed for the purpose of providing sickness insurance. Many of these voluntary societies yet exist as independent organizations, but there is a tendency for them to decrease in the competition with the compulsory organizations. In the voluntary societies the

Sickness
Insurance of
Voluntary
Organiza-
tions.

members pay such premiums as they choose with the limitation that the payment must not exceed 2 per cent of the daily wage. In the involuntary societies, the employees make one third of the contributions and the employers two thirds. The benefits secured are as follows : (a) a minium benefit in case of disability on account of accident or sickness for at least twenty-six weeks and at least one half of the daily wage ; (b) medical aid ; (c) in some cases hospital treatment and one half the sick benefits paid to the family ; (d) a funeral benefit of twenty times the average daily wage ; (e) a benefit for women for six weeks after confinement. Additional benefits may under certain conditions be paid and the time extended to fifty-two weeks during which benefits may be received.

The German laws providing for insurance against invalidity and old age were passed in 1891 and 1899.

State Compulsory Insurance in Germany for Old Age and Invalidity. All persons over 16 years of age receiving wages, clerks, and teachers who do not receive a salary in excess of \$500 must be insured. The invalidity pension is paid regardless of age, and the old age pension begins at 70 regardless of whether invalidity has occurred. Invalidity is not paid in case of occupational accidents nor if the person is able to earn more than one third of his average wage. Old age pensions are limited to those who have contributed to the fund for at least twelve hundred weeks and invalidity

pensions to those who have contributed at least two hundred weeks. The government pays all the expenses of administration and adds \$12.50 yearly to each old age pension. The remainder of the cost is borne equally by the employer and the employee. The amount of the pension as well as the employee's contribution is determined by his average annual wage. If the recipient is receiving a pension from the state or a disability pension, the old age or invalidity pension is not paid, if either one with his personal income is in excess of seven and one half times the invalidity pension.

Although Germany has no insurance against unemployment, it will be recognized that she has by legal enactments devised the most complete system of workingman's insurance. The industrial progress of Germany during the last decade would seem to show that such a system of insurance for the industrial classes has placed no bar upon her development or power to compete with her opponents in securing trade, notwithstanding that she has paid out under these three plans of insurance over one billion dollars.

In England we have seen that no special protection was given to the workman before 1880 except what he could secure from the courts under the common law, governing the relation of master and servant. However, in 1897 a State Insurance in England. new law was enacted which permitted the servant to secure damages upon proof that he was injured in the

employ of the master unless gross fault was proven on the part of the employee. In 1900 the principles of the previous acts were extended to the agricultural industry and in 1906 certain amendments were made which made possible the collection of damages for either an accident or an incapacity due to disease inevitably connected with the trade. Employers are liable for payments to employees, including clerks and salaried employees receiving less than \$1217.50 yearly. In case of death the maximum payment is \$1460 and the minimum \$730. In case there are no dependents, the employer must pay the medical and funeral expenses connected with the death of his employee. The amount paid in case of disability is determined by the duration of the disability and the weekly wage, the maximum benefit being \$4.87 per week. If the disability is permanent, the compensation is made weekly throughout life. England has for many years encouraged the purchase of annuities, but the purchasers have always been comparatively few.

In 1908 England enacted an old age pension law. The person must have attained the age of 70, must have been a resident of the country twenty years preceding his application and must prove that his yearly income is not in excess of \$157.50; also that he has been industrious and that he has not within the past ten years been convicted of a criminal offense. The amount of the pension is graded from

\$1.25 per week down, according to the income of the recipient. The expenditure which resulted from this act was far in excess of what was calculated, the first year's expenditures amounting to about \$40,000,000. The fund is received from general taxation, no contribution to the fund being required from the pensioner.

A plan for sickness and unemployment insurance has been recently introduced in Parliament which provides the following protection.

Nearly 15,000,000 men and women are included in the scope of the sick insurance fund. Every worker between the ages of eighteen and sixty-five whose earnings are less than \$800 a year will be required to insure against sickness by the payment of eight cents a week, to which the employer will add six cents and the state four cents. By this means free medical attendance will be provided, maternity benefits granted, and in case of permanent disability a life pension paid. Only the house building, engineering, and ship building trades, involving 2,500,000 workers, are to share in the unemployment insurance. The insurance of \$1.75 a week to the man out of work through no fault of his own means only bare subsistence and can hardly prove an incentive to idleness, against which other precautions are taken, but other trades in turn may be expected to demand equal treatment.

Sickness
and Unem-
ployment
Insurance.

It must be understood that all these plans of insurance in the European countries do not supplant

the work of private companies and mutual societies, each of which continues in operation. The activity of the government simply supplements private and collective activities. The friendly societies of England have especially given much protection for many years to the working classes in England.

In the Australian countries more advanced experiments are being made. In New Zealand the old age

State Insurance in the Australian Countries. pensions are paid *in toto* from state funds.

The same is true in New South Wales and Victoria. In each state it is considered

the duty of the state to support the worker who has contributed to the productivity of the nation in his earlier years. The applicant for the pension must have reached the age of sixty-five and resided in the country twenty-five years previous to his application for the pension. He must have lived a temperate and industrious life. He must not have had a prison record of over four months during the last twelve years preceding the application and must not have been in prison over one year at any time. He must have an honorable family record. The amount of the pension cannot exceed \$130, and he is not entitled to any pension if his annual income exceeds \$260. The pension is adjusted from \$130 down, according to the income received from other sources. The requirements differ somewhat in the different countries of Australia, but the principle, is the same in the above-mentioned countries.

New Zealand has a state department for accident and liability insurance to afford employers their insurance. The laws governing the liability of employers are practically the same as in England. The amount which can be collected by the employee is dependent on the wages which he receives, as in England. The private companies have been quite able to meet the competition of the state in selling this form of indemnity.

Thus we see that insurance for the industrial classes has made great progress in its development since 1880 and its development in some countries will certainly be paralleled in other nations. Changes are annually being made in the different nations and the student should familiarize himself with this topic by acquainting himself with the arguments for and against the plans, and the new proposals which are being made.

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CHAPTER XII

ACCIDENTS AND HEALTH INSURANCE

IN treating the subject of this chapter, the description and discussion are confined to that branch of casualty insurance known as personal accident and health insurance. It is the indemnity purchased by an individual upon himself. He may be, as in the case of ordinary life insurance, the beneficiary under the policy or he may select a beneficiary. The contrast which we wish to bring out is that there is no third party necessarily involved as is the case when an employer purchases indemnity from a company against injuries received by his employees, or where indemnity is purchased as in surety insurance against the defalcations of a clerk, or when indemnity is purchased, as in credit insurance against a failure of a person's creditors to pay their debts.

Personal accident insurance preceded health insurance in its development. The former was first applied to railway travel in Europe, and the first American company which was organized to sell accident insurance was formed in 1863. An accident policy has been defined as "a contract of insurance against the loss of life,

limbs, sight, or time through bodily injuries effected solely by external violent and accidental means."

However satisfactory this definition may seem, it has been found in the actual conduct of the business, that it is difficult to decide what is and what is not an accident. It was found advisable, therefore, to incorporate in the policy contract a negative definition of an accident by stating what is not an accident and then permitting the indemnity to cover all other cases.

Even then much litigation resulted over these exceptions and many companies reluctantly abandoned this form of a policy for the accident policy now in force, which is almost free from any conditions except those connected with reporting accidents and adjusting claims. Just as in life insurance, not all persons can be insured either on account of physical condition or occupation. An accident insurance company can cancel its policy, like a fire insurance company for sufficient reasons. It then returns the unearned premium.

The early accident policies had many conditions and restrictions. The indemnity was small in amount and in case of sickness, benefits were not usually paid for more than twenty-six weeks. However, as the business became more certain and better established, the competition among companies resulted in a removal of many restrictions and especially in an increase of the indemnity and extension of the period of sickness during which benefits

**The Evolution
of the
Policy.**

were paid. This period is at present very frequently fifty-two weeks. Another important modification in the policy which came with the development of the business was that which extended the policy to cover all kinds of accidents except in certain unusual circumstances to be noted later. In time a distinction was made between total and partial disability and indemnity was sold for the latter contingency. The sum paid for partial disability was often a certain percentage varying from 25 per cent to 75 per cent of the sum promised in case of total disability. Companies and policyholders have often not been able to agree as to the extent of the disability and much litigation has resulted.

In 1899 health insurance began to be written in the United States, although there had been several attempts to transact this kind of business before this time. Health insurance had been sold in Europe for some time before this date, both by private companies and by the government. The first health policies sold by the companies in the United States did not secure protection against sickness caused by many diseases, for such statistics have not been available in this country to any great extent until within the last decade. Gradually, however, protection against many diseases was given until now health insurance extends to losses resulting from most of the diseases. The health policy was at first combined with the accident policy, constituting accident

and health insurance, and this plan is yet followed by some of the companies. Some companies now write what is practically an unlimited health policy.

In the development of the business, certain important benefits have been added as a result of the competition among companies to make the policy more attractive to the buyer. **Benefits in the Policies.** Among these benefits may be mentioned the following: (a) double indemnity for injuries received under certain circumstances; (b) the payment of a stated sum in case of injury instead of the weekly payments provided for; (c) accumulative benefits up to 50 per cent of the principal sum of the first year upon the payment of the annual premium in advance, the yearly additions being 10 per cent; (d) a surgical benefit to be paid if an operation is required within 90 days after the injury, as, for example, the payment of \$2 for the injection of antitoxin in the case of lockjaw.

Suicide whether sane or insane is usually not included, but sometimes the company pays a certain percentage, often 10 per cent of the face of the policy. **Restrictions in the Policy.** The Supreme Court of the United States in 1907 decided in the case of *Whitfield v. Ætna Life Insurance Company* that a company cannot set up suicide as a justifiable reason for refusing to pay a claim, if a state law expressly states that such suicide does not free the company from liability unless, said the court, "it be shown that

the insured at the time of his application for the policy contemplated suicide."

The health policy also usually has a limitation of liability arising from (a) residence in the tropics or other specified regions; (b) engagement in military or naval service; (c) sickness due to accidental violence. The company also limits the amount for which it will be liable for accident and health insurance on a single life. This may vary from \$25,000 to \$100,000 or more, according to the age, the amount, and the character of the business transacted by the insurance company. The amount paid in weekly benefits must not exceed the weekly wage in accordance with the fundamental principle of all insurance, viz. that the individual shall not profit by insurance on his life or property. If a sum in excess of this weekly wage is provided for by insurance in several companies, each company reduces *pro rata* the sums it pays and returns to the policyholder the excess premium. A policy may be canceled by the company for good reasons and the unearned premium on it returned to the policyholder.

A schedule of losses paid by one of the leading accident insurance companies is as follows:—

Life	\$25,000
Both hands by severance at or above the wrist . . .	25,000
Both feet by severance at or above the ankle . . .	25,000
One hand severed at or above the wrist and one foot severed at or above the ankle	25,000
Irrevocable loss of sight of both eyes	25,000

Either hand severed at or above wrist	12,500
Either foot severed at or above ankle	12,500
Irrevocable loss of sight of one eye	8,334

The above are the indemnities paid for accidents of travel. The indemnities due to ordinary accidents are in each case reduced about 50 per cent. There are many different kinds of policies, providing for different indemnity under different circumstances.

The business of health and accident insurance is transacted by both stock and mutual companies, the latter including fraternal and assessment companies. In organizing a stock company the projectors must first sell a certain amount of stock and invest the proceeds in securities. These securities are then deposited with a state official.

**How the
Business is
Transacted.**

The state specifies the amount of this deposit, usually a minimum of \$100,000, and also limits the kind of securities which may be purchased. These securities are held by the state as a guarantee that the claims will be paid in case the premium receipts and the reserve are not sufficient for this purpose. The interest on the deposit is paid to the company. This deposit entitles the company to write personal accident insurance. If it desires to broaden its scope of business and become a casualty company writing various "lines," such as burglary, plate glass, steam, and other lines of casualty insurance, it must increase its deposits with the state

**The Deposit
Fund.**

until a certain maximum is reached, often \$250,000, when it is permitted to write all lines of casualty insurance.

In addition to this initial deposit the company must have at all times a sum either invested in securities permitted by the state or in cash **The Basis of the Reserve.** which is equal to the unearned premiums on all unexpired risks. The policy is usually issued for a period of one year with the premiums payable in advance. The company reports as of December the 31st to cover all transactions for the preceding calendar year. Inasmuch as it is assumed that the policies have been issued uniformly throughout the year, some will be almost expired and some will just be issued, but on the average all the policies may be considered as being in force one half a year, and therefore one half the premiums have been earned and the other half is unearned.

In the early history of the operation of a stock company selling personal health and accident insurance the greater part of the funds of the company received from premiums and other sources is not available for current expenses, since both the deposit fund and the reserve are held intact under the law of the state. Theoretically all the reserve is set free at the close of the policies' years on all the policies for which it was held, that is to say, the total premium receipt is available for expenses of all kinds until the risks for which they are held have expired and until

claims on such policies have been settled. If any sum is left over, this is a possible source of profits to the stockholders.

In the actual practice of conducting the business of health and accident insurance by a stock company whose business is developing, the following is the method. In order to secure funds with which to start the stock company, the stock is sold at a premium. This the proposed company will ordinarily be able to do, for the deposit fund, the reinsurance fund, or reserve fund, the surplus, and the amount to be held for claims in process of adjustment will each draw interest for the company.

**How the
Business is
Transacted.**

It must also be realized that in each succeeding year of the operation of a developing company a smaller relative part of the premium income from the new business will need to be set aside for the reserve. For example, if a company writes business upon which there is a \$200,000 premium income for the year, it must set aside \$100,000 as a reserve. If it writes business upon which the premium income the second year is \$300,000, it must have \$150,000 as a reinsurance reserve; but it already has \$100,000 of this sum in its reserve fund, so it will be compelled to add only \$50,000. If it had written only \$200,000 in premiums the second year, it would not have been necessary to take any of this premium income and place it in the reserve. In time it may be able to pay out even all

the premiums received for claims that fall due and yet be able to pay the stockholders good dividends. It is not to be inferred that the risks of one year pay for the risks of a later year, but the company instead of taking what is left of the reserve for unexpired risks, when these do expire, simply permits this sum to stand as a contribution to the reserve for the new risks which it writes.

This reserve is sometimes called, as in property insurance, the reinsurance reserve, but care must be used in the use of such terms. It is properly called the unearned premium income or simply the reserve. While it is usually true that this reserve makes it possible for a company to sell its business to another company, yet it may happen that the purchasing company would not assume the obligations for this sum or it may be able to assume them for less. If the old company has carelessly selected its risks, the so-called reinsurance reserve may not accurately represent the real risk, or if it has selected the risks very carefully, this reinsurance reserve may be more than adequate.

The company has officers similiar to those of any other corporation. The stockholders elect the board of directors, who elect the president and other important officials. Authority and responsibility tends to be very much centralized. The departments are similar to those in an ordinary life insurance company with the exception

**Reserve not
a Reinsur-
ance Fund.**

**Internal Or-
ganization of
a Company.**

that the claim department is of relatively greater importance. It can be readily understood why the claim department is of such importance, for in the ordinary life insurance contracts the conditions under which a claim is paid are much more specific and definite.

The premium which is charged for an accident policy depends upon the hazard of the employment in which the purchaser is engaged. This hazard is obtained from the collected data of accidents in various occupations and from these data classes are constructed. The classification directly determines the premium, so that one person may be compelled to pay twice as much as another of the same age for the same amount of accident insurance.

Remembering that the policy provides indemnity, it may be understood why an insignificant injury, incurred in one occupation may have no significance in another one. A slight injury to the hand worker may be a serious one for him but scarcely affects the earning power of the teacher or lawyer. Then, too, the hazards in occupations are continually changing on account of improved appliances, the use of dangerous machines, dangerous material, and for many other reasons. Even assuming, therefore, that the most complete statistics of injuries were available for any one year, the same statistics would probably not be applicable for a later year.

There is also the difficulty of properly valuing such factors as the effect which an occupation has upon the physical condition of the insured in making him more liable to accidents. Then, too, what an individual does when he is not employed in his regular occupation affects the hazard of the risk on him. For example, occupations which are subject to periods of interruption will result in some of the workers doing such acts as will make them more liable to accidents when they return to their regular work. The more regular the employment, and the less diverse the ways in which the individual employs his time outside of his regular work, the more accurate is the classification likely to be. However, it must be remembered that all insurance has to do with large numbers and that it cannot be expected that individual exactness will always be secured. If insurance classification secures relative equity as regards classes, it has gone far to justify itself as scientific.

It has been stated that the claim department is of great importance in accident and health insurance.

**Settling
Claims.**

This is so, not only because it is not always an easy matter to determine the indemnity to which the honest claimant is entitled, but also because many attempts are annually made to defraud the company. The claimant may deliberately injure himself. This is especially likely to happen at times when he is out of work. He may even pretend an injury has been suffered, or attempt to prolong his

illness, or make claims for injuries which are not covered by the policy. Each claim must be examined, not because a majority of them are fraudulent, but in order to protect the honest claimant by refusing to pay the dishonest claim. Manifestly the honest claimant must even then pay in the form of a higher premium a part of the cost of discovering these fraudulent claims by a higher expense for operating the company.

The relation of the state to the business of accident and health insurance is much the same as to other insurance. We have seen that a deposit and a reserve with limitations as to the character of the securities purchased is established by the state. Annual reports are also required. However, practically all the legislation up to within the last few years has been to secure solvency of the company. Since 1908 there has been action — and action is pending in other states — to require standard provisions in all accident and health policies. Such legislation is intended to protect the policyholder in other than matters of solvency. New York passed such a law in 1909 and as the laws either enacted or proposed follow in general the New York statute, the chief provisions of the law may be stated.

**The
Relation
of the State
to Accident
and Health
Insurance
Companies.**

The standard provisions for all accident and health policies include among other provisions the following : —

**Standard
Provisions.**

(a) A copy of the application must be issued with the policy.

(b) A provision which specifies the time within which notice of the accident or disability shall be given. This period shall not be less than twenty days from the date of the accident nor less than ten days from the date of the beginning of the disability from the sickness upon which the claim is based, provided that in case of accidental death immediate notice may be required unless the notice therein specified shall be shown not to have been reasonably possible.

(c) A provision that notice to the agent of the company or sent to the office of the corporation shall be due notice.

(d) A provision that if a past due premium shall be accepted by the company or by a branch office or by an authorized agent such acceptance shall reinstate the policy as to disability from accidental bodily injuries thereafter sustained, but such acceptance only reinstates the policy as to disability from disease beginning more than ten days after the date of such acceptance.

(e) A provision that if the insured changes his occupation to a more hazardous one or contracts a disease in a more hazardous occupation than the one insured under, the company must pay such proportion of the indemnity as the premium would have purchased at the same rate in the more hazardous occupation.

(f) The company must pay benefits within sixty days of the receipt of due proof of disability or death.

(g) No policy shall limit the time within which proofs of claim can be given to a period less than ninety days from date of death, or dismemberment, or loss of sight or for the termination of any other disability.

In addition to these standard provisions, there are also certain standard prohibitions among **Prohibitions.** which may be mentioned the following:—

(a) A provision limiting the time at which an action at law or equity may be commenced to less than one year from the date when final proofs of the claim were filed.

(b) A provision which prevents the deduction of any premium or assessment from the indemnity unless such deduction is covered by a written order or note.

(c) A provision which limits the amount of indemnity to be paid to a sum less than the indemnity payable under the terms of the policy and for which the premium has been paid unless other such insurance is carried without notice to the company.

The premiums written in 1909 amounted to \$24,794,108 and the losses were \$9,903,379 or a loss of 41 per cent. The greatest needs in personal accident insurance are for a greater degree of coöperation among companies in order that the specific experience of each may be tabulated with a view of making the

classifications more scientific and by coöperation to check the evils of excessive competition.

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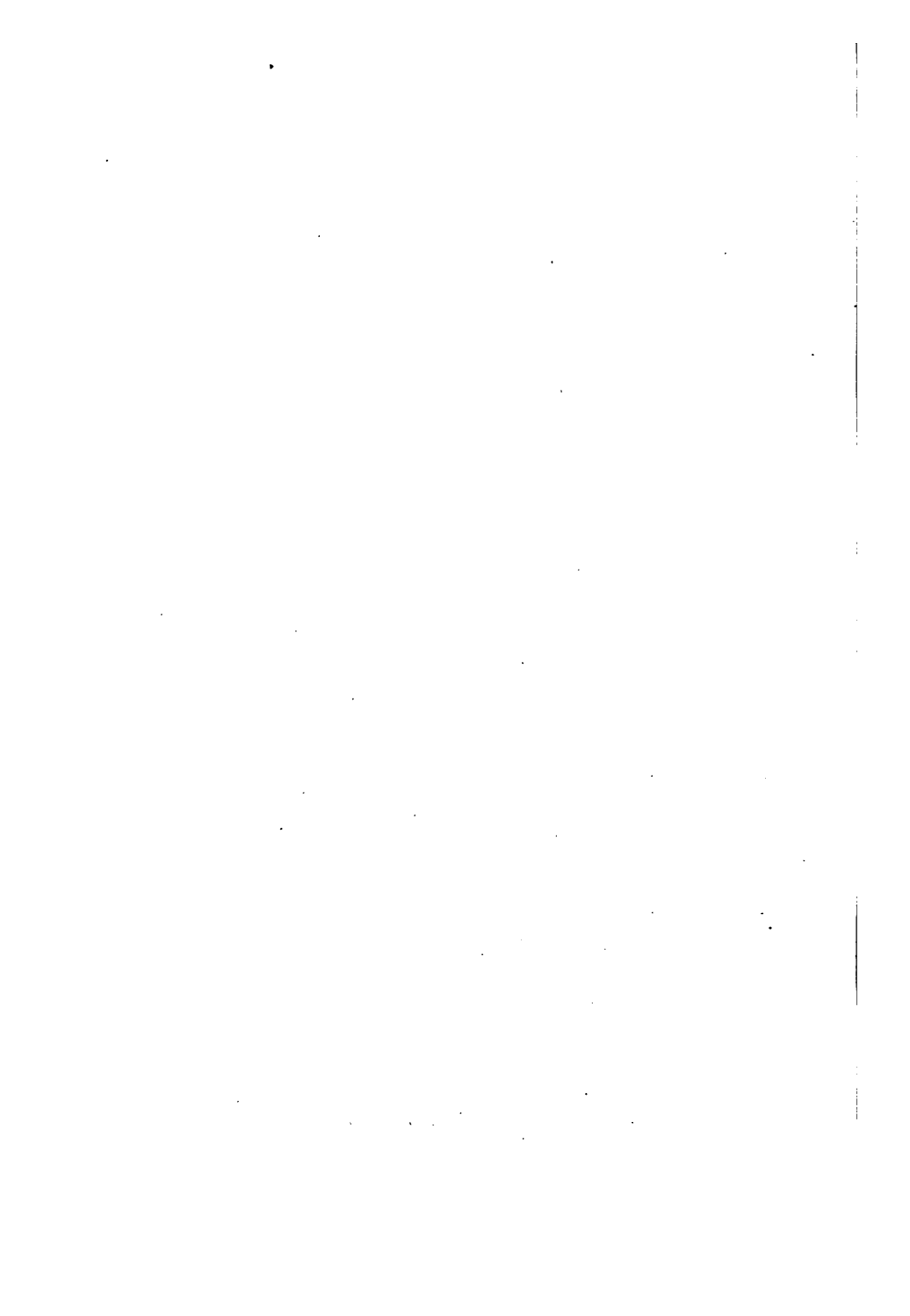
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